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ANNUAL REPORT
OF THE
Department of Lands and Mines
OF THE
PROVINCE OF ALBERTA
FOR THE
**Fiscal Year Ended March 31st
1937**

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY



EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
1938

*To the Honourable J. C. Bowen,
Lieutenant-Governor of the Province of Alberta.*

SIR:

I have the honour to submit the report of the Department of Lands and Mines for the fiscal year ended March 31st, 1937.

I have the honour to be, Sir,

Your obedient servant,

N. E. TANNER,

Minister of Lands and Mines.

EDMONTON, February 15th, 1938.

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GOVERNMENT OF ALBERTA
DEPARTMENT OF LANDS AND MINES

Resulting from the transfer on October 1st, 1930 of Alberta's natural resources from federal to provincial control, the Department of Lands and Mines was on this date brought into being by the Alberta Government. The general purpose of the new Department was to be one of supervision and management of the resources in question.

Ministers of the Department, responsible at different periods for this administration, appear as follows:

Hon. R. G. Reid, appointed October 2nd, 1930,

Hon. Hugh W. Allen, appointed July 10th, 1934,

Hon. Charles C. Ross, appointed September 3rd, 1935,

Hon. N. E. Tanner, appointed January 5th, 1937.

CHIEF OFFICERS
DEPARTMENT OF LANDS AND MINES
March 31st, 1937

Honourable N. E. Tanner.....*Minister of Lands and Mines*

John Harvie*Deputy Minister of Lands and Mines*

T. C. Rankine*Departmental Solicitor*

D. H. Boles*Director of Lands*

J. W. Stafford*Superintendent of School Lands*

J. W. Hamilton*Superintendent of Mining Lands*

T. W. Dalkin*Superintendent of the Technical Division*

C. W. Dingman*Director of Petroleum and Natural Gas*

T. F. Blefgen*Director of Forestry*

J. A. Hutchison*Assistant Director of Forestry*

F. W. Neilson*Chief Timber Inspector*

I. N. McKinnon*Accountant*

R. J. Dean*Inspector of Revenue*

A. A. Millar*Chief Inspector, The Coal-mines Regulation Act*

M. Gossip*Agent, Calgary Land Agency*

R. Cruickshank*Agent, Lethbridge Land Agency*

J. J. E. Clarke.....*Agent, Peace River Land Agency*

J. L. Irwin*Statistician*

REPORT

OF THE

Department of Lands and Mines,

1936-37

Honourable N. E. Tanner,
Minister of Lands and Mines,
Edmonton.

SIR:

I have the honour to submit the seventh Annual Report of the Department of Lands and Mines for the fiscal year ended March 31st, 1937.

A departmental surplus on income account of \$996,719.59 is shown for this period in comparison with the previous year's surplus of \$647,931.21, revealing a satisfactory increase of \$348,788.38.

Before we deal, with the year's work I wish to make reference to the Department's accomplishments since the natural resources of Alberta were transferred to the province for administration.

For over thirty years, or to be more specific from September 1st, 1905, when the Province of Alberta was created, an insistent demand has been made at all times upon the federal government by the people of this province for the transfer and control of Alberta lands and minerals. A demand which was terminated by the agreement of December 14th, 1929.

At the time this agreement was made the Government of the day, patterning an administration upon the Department of the Interior, Ottawa, visualized that for at least five years no benefits of any importance would accrue to the people of Alberta. They were in fact convinced that an annual loss over this initial period would be experienced.

Notwithstanding these fears, however, the Department during its first six and a half years of existence has produced the following surpluses on income account:

	<i>Surplus</i>
*October 1st, 1930 to March 31st, 1931 (latter half of fiscal year)	\$348,768.54
Fiscal Year 1931-32	341,859.06
1932-33	289,616.15
1933-34	185,072.04
1934-35	646,528.97
1935-36	647,931.21
1936-37	996,719.59

In the years immediately prior to the transfer the Department of the Interior sustained very considerable loss in their administration of these same resources and anyone sufficiently interested can find data in the annual reports of that Department or in the reports of the Auditor-General of Canada.

Changing from retrospect to the present and also future there are many points regarding the province's natural resources the discussion of which is not only of very real interest but of vital importance to the people of Alberta. Coal for example may well be cited as an outstanding if somewhat contentious subject.

*October 1st, 1930, date upon which the Department of Lands and Mines was formed.

The bulk of Canada's coal reserves, bituminous, sub-bituminous and lignite, are in this province. A noticeable percentage of the world's visible supply as a matter of fact is in Alberta and we are presumably assisted by a subvention freight rate to Ontario of \$2.50 per net ton where the ordinary rate is \$8.00 or over.

In spite of these factors, in 1935 we only shipped 64,659 tons of coal to Ontario when in the same year that province imported from the United States, in addition to shipments from Nova Scotia and New Brunswick, 10,840,950 tons.

Our shipments to Ontario in this particular year in comparison to these imports from the United States, on which tariffs up to 75c per ton were paid, represent an insignificant one-half of one per cent.

This illuminating and decidedly discouraging result, which is repeated year by year, is attributable solely to the fact that the subvention rate is not sufficient to enable Alberta coal to meet a competitive price in eastern Canada.

This revelation of course finishes at only one conclusion. A conclusion which shows that pending a fair and reasonable adjustment of this situation, Alberta, holding the bulk of Canada's coal reserves, must continue to be largely inactive regarding their development while eastern Canada continues to be supplied with her requirements from foreign countries.

Our known deposits of bituminous sands in the present accessible area have been estimated to contain over one billion barrels of oil, and two companies are at work to produce them commercially. In fact, before the advent of the Turner Valley crude oil discovery, it had been thought that our oil resources might be confined to recoveries from these deposits. The discovery of a crude oil field, however, in the south end of Turner Valley, introduced by the most successful completion of the Turner Valley Royalties well in the north-west quarter of section 28, township 18, range 2, west 5th meridian on June 16th, 1936, gave quite an impetus to oil-drilling operations throughout the province.

Early in 1936 the first step was taken by the amendment of the Petroleum and Natural Gas Regulations so that the amount expended in drilling operations, exclusive of the cost of machinery and casing employed, but including reasonable depreciation, would be established as a credit in the books of the Department and such expenditure used to satisfy the rental of the petroleum and natural gas locations held by the lessee. At the same time provision was made so that a lessee who had acquired the petroleum and natural gas rights in freehold land contiguous to his Crown lease could, by an arrangement with the Minister, consolidate his operations in respect to the whole by the installation of machinery and equipment on one or more of the locations forming a part of the group. Also, the area of the group or consolidation was enlarged to a maximum of 50,000 acres and even though the expenditures were made on freehold land it was permissible to establish a credit of an amount not exceeding 50% of the approved expenditures which could be used over a period of three years to the payment of rentals of petroleum and natural gas leases within the group upon which oil or natural gas in remunerative quantities had not been found.

An increase was granted also on account of excess expenditures, making the allowable 50% instead of 35%, and these concessions together with the action taken in March of the same year to rebate the royalty in the case of a discovery well situate in "wild-cat" territory, all gave an assurance of the Government's intention to further the development of the natural resources.

At the same time as these concessions were being made in the leasing regulations a further encouragement was being given to companies to explore "wild-cat" territory by the establishment of regulations for the issue of permits to prospect for petroleum and natural gas.

These permits could be taken out for six months upon payment of 5c for each acre covered by the application or for twelve months upon payment of 10c for each acre. Extensions of the permit were permissible under certain conditions upon payment of a monthly rental at 1c for each acre, but the work of the investigation had to be completed within the maximum of two years.

Under these amended regulations 585,882.78 acres were prospected during the period under review resulting in a total acreage of 776,505 being leased by the end of the year for actual drilling operations. It is anticipated with the very encouraging results so far obtained that many areas in addition to the Turner Valley will prove to contain crude oil.

At this juncture I would like to point out that while the development of the oil resources has unquestionably been the most spectacular section of our administration, it has by no means resulted in any lessening of effort to improve regulations for development of the other vast resources of the province. For this reason, therefore, it is of interest to inspect the work of the Department in its endeavour to encourage introduction of new capital with a view to the development of Alberta's great and widespread natural wealth.

DEPARTMENT'S INCREASED REVENUE AND PRODUCTION, 1936-37

Revenue for the year shows an increase of \$494,020.31 with expenditures increased by \$145,231.93. Amongst details of these revenue increases as reported by the various divisions of the Department the following are given:

Mining lands, \$209,763.83; school lands, \$102,176.29; lands and grazing, \$30,699.87; and timber, \$27,072.22.

Petroleum production was increased by 198,065 barrels and gas consumption by 52,552 Mcf. Coal produced during the calendar year 1936 showed an increase of 233,402 tons over the preceding year. Coke production increased by 1,811 tons and briquettes by 2,203 tons. Additional electric power, increased by 1,800,870 k.w. hrs., was used in the operation of Alberta coal-mines during the year.

Shale mined during the calendar year showed an increased production of 4,330 tons with an increase of 1,614,084 bricks manufactured therefrom; cement production increased 23,979 barrels; lime, 2,545 tons; and stone, 11,634 tons.

PROVINCIAL LANDS ADMINISTRATION

Details of all matters pertaining to provincial lands' administration are given in the section of this Report belonging to that Division.

Homestead Entries.—First and second homestead entries and soldier grants during the year totalled 1,432 covering approximately 229,120 acres in comparison with 1,528 representing an approximate acreage of 244,480 for the previous fiscal year.

Comparative statement showing totals of homestead entries and soldier grants from 1930-31 to 1936-37 follows. Fuller details of this information appear in the Accounting Division's section of this Report and in similar sections of the departmental Annual Reports of preceding years.

HOMESTEAD ENTRIES GRANTED

Fiscal Year	Homesteads	Second Homesteads	Soldier Grants	Total	Homesteads Granted to Women
1930-31	3,042	557	149	3,748	.....
1931-32	3,876	522	30	4,428	1,521
1932-33	3,112	358	29	3,499	976
1933-34	2,984	696	26	3,706	1,011
1934-35	2,425	325	30	2,780	835
1935-36	1,329	186	13	1,528	455
1936-37	1,296	129	7	1,432	479
Totals.....	18,064	2,773	284	21,121	5,277
<hr/>					
This year in comparison with last	Decrease 33	Decrease 57	Decrease 6	Decrease 96	Increase 24

NOTE.—Homesteads for women were not available until 1932. The total number of women's homesteads as shown in the above statement is included in the first homestead total.

Grazing.—Information showing the status of both dominion and provincial ranch grazing leases, giving details of applications, amalgamations and areas cancelled, is given for the fiscal year under review in the Director of Lands' section of this Report.

Provincial Grazing Reserve.—The area covered by township 1, range 19, west of the 4th meridian, continued during this period as a grazing reserve with the feed and water supply for the stock, limited to 500 head, proving sufficient. During the winters of 1936 and 1937 a limited number of stock, due to drought conditions in the south, was permitted to graze on this reserve.

CONSOLIDATION OF GRAZING ACCOUNTS

Due to drought and low prices prevailing for livestock the ranching industry became seriously involved in the payment of rentals and taxes on leases held from the province.

Meetings took place in the fall of 1936 and again in January of 1937 with representatives of the Western Stock Growers' Association, resulting in substantial remissions being made and consolidating indebtedness so that lessees might have the option of paying arrears in seven, equal, consecutive, annual instalments; the first instalment being due and payable on January 1st, 1938.

A further concession was made in which a discount was given for arrears paid during the year 1937, a concession concerning which many ranchers took advantage.

SCHOOL LANDS ADMINISTRATION

Details of the administration of this Division are given in the section of this Report reserved for the Superintendent of School Lands.

Farmers' Creditors Arrangement Act.—Attention is emphasized in this section of the fact that the Board of Review operating under this Act has not as yet authorized any of the anticipated compromises with respect to school lands' sales.

Increase in Revenue.—The revenue of this Division, after deducting trust funds amounting to \$55,799.89 being payment on account of principal on school lands' sales, shows the most appreciable increase of \$102,176.29 in comparison with last year's revenue.

As stated by the Superintendent of School Lands, this increase is principally due to the decided improvement in grain prices for the year. An improvement which naturally had a most favourable reflection on grain received by the Department on crop share leases netting thereby a larger revenue.

MINING LANDS ADMINISTRATION

Leases Dealt With.—As given in last year's Report, an itemized statement dealing in the status of leases for the period under review is shown in the Mining Lands section.

The statement covers leases in connection with petroleum and natural gas from provincial lands, school lands and Crown reserves, coal from provincial lands and school lands, quarrying, quartz mining, salt and gypsum, bituminous sands, dredging and miscellaneous.

Totals are given between October 1st, 1930, date of the natural resources transfer to the province, and March 31st, 1937. Leases active at date of this transfer totalled 19,635, issued since that date, 5,135; divided, 83; cancelled, 18,499; renewed, 183; active as at March 31st, 1937, 6,171. The areas covered by these figures are given in a separate statement.

Additional information covering fees, rentals, bonus collected and royalties on petroleum, natural gas and coal, together with other information of a general nature, is also given. The statement of coal royalties, which appeared last year, is repeated and carried on to 1937.

Revenue.—The greatest increase amongst departmental revenues for the year is accorded to the Mining Lands Division—an increase of \$209,763.83 in comparison with last year's revenue.

TECHNICAL DIVISION

Notification (Land Patents).—Since the transfer of the resources, the number of notifications issued during the year under review proved second only to the previous year when the total reached 2,965.

The following comparative statement shows the number of notifications and acreage covered thereby for the fiscal years 1930-31 to 1936-37:

NOTIFICATIONS ISSUED

Fiscal Year	Number of Notifications	Area, Acres
1930-31	23	3,019.71
1931-32	784	111,424.478
1932-33	1,260	178,887.233
1933-34	1,106	165,224.553
1934-35	2,006	324,611.398
1935-36	2,965	433,529.126
1936-37	2,231	325,615.379
Totals	10,375	1,542,311.877
Decreases this year in comparison with last	734	107,913.747

Roadways.—A noticeable increase appeared in the number of plans of surveyed roadways which were filed during the year in this Division. These plans, forwarded by the Department of Public Works, affected 988 parcels of land.

Lands Transferred from the Dominion to the Province.—Much correspondence is still carried on with Ottawa regarding the disposition of certain lands. A list of the areas transferred to provincial control during the year by the Dominion is given in the Technical Division's section of this Report.

New Maps.—A re-issue of the map of Alberta, which was last year described by this Division to be on a scale of seventeen and one-half miles to the inch, was published during the year. The re-issue comprises 1,000 copies in black and blue and 2,000 copies in black and blue showing the provincial highway system in red. A great demand for this highway map has been in evidence.

The map of Alberta, sixteen miles to the inch, to be issued by the Dominion Government, was not received during the year. It is understood that some time yet is to elapse before this publication will be available.

A geological map of Alberta, to be produced by Dr. J. A. Allan, Department of Geology, University of Alberta, in co-operation with this Division, was being designed towards the close of the year. The scale is to be twenty miles to the inch and the map is to be printed in colours. Topography will be shown by brown, contour lines with 400 foot intervals up to 5,000 feet.

Interprovincial Boundary and Northern Boundary of Province.—A request has been made to the Director of Surveys to consult with the Saskatchewan and Dominion authorities in order to complete the survey of the fourth meridian from Lake Athabaska northwards to the northern boundary of the province.

It is deemed advisable at the same time to survey the 60th parallel so that the boundary between Alberta and the Northwest Territories may be established.

Increased Work of Division.—The increased rush of applications resulting from the unusual activity in Turner Valley and other oil-fields during the year created much additional work for the Division. The oil situation demanded a great deal of attention and unavoidably held up other work.

The enlarged demand, both personal and written, for maps, plans, sketches, graphs and legal descriptions, and correspondence in connection with same, taxed the capacity of the entire staff.

PETROLEUM AND NATURAL GAS

The outstanding feature of the fiscal year under review was the bringing in of the Turner Valley Royalties well, located in n.w. sec. 28, township 18, range 2, west of the 5th meridian, on June 16th, 1936.

The lengthy search for recoveries on a large scale of high grade crude oil from the Madison limestone appeared to be ended by the discovery made by this pioneer well which had been so successfully drilled on the western flank of the structure in southern Turner Valley. The incident without question has opened a new and dramatic chapter in the oil industry of Alberta.

The initial production of the well was at a satisfying potential of 850 barrels a day. This figure eventually settled down to 550 but with acidization it was brought back to its original production rate which with very little deviation has been maintained ever since. The oil registered a gravity of 44.9° Beaumé.

Following this spectacular change in Alberta's oil industry, drilling in this section of the Valley naturally became very active. The next crude oil producers from the limestone were Foundation and Sterling Pacific, No. 3 which came into production in December, B. and B. in February and Westside and Sterling Pacific, No. 4 in March. Each of these five wells was within a mile and a half of the pioneer Turner Valley Royalties well and each one was a satisfactory producer.

In October, 1936, at the annual meeting of the Canadian Institute of Mining and Metallurgy held in Edmonton, J. Grant Spratt, District Engineer, Calgary, and Vernon Taylor, Resident Engineer, Turner Valley, both on the staff of the Petroleum and Natural Gas Division of this Department, presented a paper entitled "Oil Prospects along the West Flank of the Turner Valley Gas Field."

This publication, which surveyed the possibilities of Turner Valley and stressed the potentialities of the field, was well received and widely distributed.

Under the heading of "Future Prospects" and sub-heading of "Potential Reserves" the memoir presents an estimate of reserves based on calculations made.

Two paragraphs in particular under these headings carry sufficient interest to warrant their reproduction. They are as follows:

"A certain amount of gas will be present in the oil area either as free gas or as gas in solution, and as such gas has been found to occupy from 20 to 35 per cent of the reservoir volume in other fields, a 50 per cent shrinkage factor is applied to Turner Valley, which results in a possible average oil reserve of 50,000 barrels per acre.

"The area of potential oil territory is unknown as yet, the eastern limit only being fairly well defined (see map, Figure 1). The north and south boundaries are extended as far as the known gas area. The western boundary is very indefinite and will be limited either by excessive drilling depths or by the possible existence of edge water. From present knowledge, it is assumed that the western boundary can be extended to the 7,000-foot level of the top of the limestone, and, according to known structural conditions, a prospective oil area of 5,000 acres is indicated."

This was the situation at the close of the fiscal year, one which proved to be the forerunner of the spectacular increases in oil production which followed in this newly discovered zone. A situation, incidentally, which has raised the status of Alberta oil to a high level and included it as an important and vital factor in Canadian industry.

Events of dramatic interest to the history of petroleum development will be available for presentation in next year's Report.

ALBERTA OIL PRODUCTION BY FISCAL YEARS

Period	Barrels	Period	Barrels
1914 to close of fiscal year,		Fiscal year	
1928-29	1,453,404	1934-35	1,246,958
Fiscal year, 1929-30	1,135,014	1935-36	1,249,596
1930-31	1,614,202	1936-37	1,447,661
1931-32	1,246,328		
1932-33	871,082	Total	11,405,718
1933-34	1,141,473		
Increase this year in comparison with last			198,065 barrels

ALBERTA OIL PRODUCTION BY CALENDAR YEARS

Calendar Year	Barrels	Calendar Year	Barrels
1914 to 1924	96,504	1932	917,622
1925	168,643	1933	1,013,040
1926	219,598	1934	1,265,940
1927	332,133	1935	1,265,750
1928	489,531	1936	1,320,442
1929	999,152		
1930	1,433,844	Total	10,975,394
1931	1,455,195		
Increase this year in comparison with last			56,692 barrels

NATURAL GAS CONSUMPTION

Fiscal Year	Mcf.
1929-30	23,228,637
1930-31	23,312,006
1931-32	18,327,139
1932-33	16,061,383
1933-34	16,346,376
1934-35	16,600,059
1935-36	18,674,944
1936-37	18,727,496
Total	151,278,040

Increase this year in comparison with last 52,552 Mcf.

FOREST SERVICE

Fire Season.—With reference to timber losses from forest fires, the fiscal year under review in its relationship to the previous one of 1935-36 proved disastrous in comparison.

It will be remembered that in last year's report the most favourable and encouraging fire season was experienced since the transfer of the natural resources to the province. Total loss for this particular period was only \$5,768.00.

This year, however, the exact reverse was experienced. Lack of precipitation, particularly from mid-June to mid-August, provided the most hazardous period for the province which has ever been experienced. Two major fires, originating in the Flat Head and Elk River Valley in British Columbia, spread into Alberta over very wide fronts and were largely responsible for the disastrous total of \$1,549,930.30 reported for fire losses during the year. A total which is representative of one of the worst fire seasons the province has ever known. A detailed account of the situation is given in the Forestry section of this Report.

A summary of fire losses within and outside Alberta forest reserves from October 1st, 1930, date of the natural resources transfer to the province, to December 31st, 1936, is given on the next page.

Timber Industry.—Timber operations of all kinds carried out on berths and permits on provincial and school lands together with permits and sales in forest reserves are given in full detail in the Forestry and School Lands' sections of this Report.

An increase of \$27,072.22 in revenue derived from these total operations is shown in Statement B of the Accounting Division's report.

Grazing on Forest Reserves.—Forest reserve grazing permits issued show a decrease of 36 in comparison with last year's total.

A decrease is reported also for cattle grazed thereon but increases appear for horses and sheep.

Nursery and Tree Distribution.—Transplanting and seeding was carried on in the fall of 1936 at Oliver and also at the subsidiary nurseries at Ponoka, Fort Saskatchewan and Lethbridge.

A total of 723 applications for seedlings and transplants was approved, 689 coming from individuals, 21 from schools and 13 from institutions. Shipment of trees was carried out from April 22nd to May 22nd.

SUMMARY OF FIRE LOSSES WITHIN ALBERTA FOREST RESERVES

Period	Number of Fires	Cost of Suppression	Area (Acres)	Salvage Timber M.f.b.m.	Salvage Timber (Cords)	Unsalvage Timber M.f.b.m.	Unsalvage Timber (Cords)	Total Loss
October 1, 1930 to March 31, 1931	9	\$ 551.67	41,925	.....	.....	2.00	129.00	\$ 71.69
April 1, 1931 to December 31, 1931	31	17,624.12	52,218.05	2,370.5	3,086	6,295.73	111,599.00	154,651.47
Calendar Year 1932	32	3,491.04	2,552.72	8	15,863	3,845.00	108,005.60	8,790.73
Calendar Year 1933	29	18,409.92	29,273.88	26.75	1,201	19,188.23	108,414.00	92,796.93
Calendar Year 1934	27	31,118.31	21,963.00	1,510	9,200	2,661.00	209,550.00	96,195.87
Calendar Year 1935	12	84.56	6.50	.....	.....	.....	60.00	45.50
Calendar Year 1936	52	108,894.48	165,465.00	7,573	.....	885,192.00	764,594.00	1,504,273.45
TOTALS	222	\$180,184.30	271,526.105	11,488.25	29,375	917,183.98	1,195,351.60	\$1,859,825.64

SUMMARY OF FIRE LOSSES OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	47	\$ 686.64	11,145.19	155.00	104,199.00	3.75	684,625.5	\$ 79,930.85
April 1, 1931 to December 31, 1931	591	82,088.89	552,658.07	134,536.00	12,215.00	40,627.15	132,743.00	712,835.79
Calendar Year 1932	347	15,320.51	133,562.14	274.75	12,215.00	41,694.50	59,545.00	132,085.58
Calendar Year 1933	249	16,071.75	64,489.12	4,383.50	13,953.50	547.50	14,464.00	100,008.43
Calendar Year 1934	193	7,050.51	36,907.00	3,404.50	1,105.00	1,513.00	5,371.00	29,825.77
Calendar Year 1935	85	1,558.90	6,313.25	160.00	23,116.00	659.00	6,017.00	5,722.50
Calendar Year 1936	196	13,647.81	38,989.00	2,347.00	.....	.....	.....	45,656.85
TOTALS	1,708	\$137,325.01	844,063.77	145,287.75	157,837.50	207,735.40	902,765.50	\$1,126,085.77

SUMMARY OF FIRE LOSSES WITHIN AND OUTSIDE ALBERTA FOREST RESERVES

October 1, 1930 to March 31, 1931	56	\$ 1,238.31	11,187.115	155.00	107,285.00	5.75	129.00	\$ 80,022.54
April 1, 1931 to December 31, 1931	622	99,713.01	604,876.12	136,906.5	28,078.00	44,472.15	796,224.5	867,487.26
Calendar Year 1932	379	18,811.55	136,117.89	282.75	15,154.50	60,882.75	133,748.60	160,876.31
Calendar Year 1933	288	35,381.67	93,765.00	4,410.25	12,359.00	3,208.50	167,959.00	195,805.36
Calendar Year 1934	240	38,169.02	58,870.00	4,914.50	1,195.00	1,513.00	224,014.00	126,021.64
Calendar Year 1935	97	1,653.46	6,319.75	160.00	23,141.00	885,851.00	5,431.00	5,768.00
Calendar Year 1936	248	122,542.29	204,454.00	9,947.00	.....	.....	770,611.00	1,549,930.30
TOTALS	1,930	\$317,509.31	1,115,589.875	156,776.00	187,212.50	1,124,919.38	2,098,117.10	\$2,985,911.41

COAL

The output of coal produced from Alberta mines during the calendar year, 1936, was 5,696,375 tons with a valuation of \$14,720,004.06 being an increase of 233,402 tons over the preceding year. Added to this production figure was a total of 2,603 tons mined by farmers under permit for their own use.

The production of coke for the calendar year, 1936 increased by 1,811 tons and of briquettes by 2,203 tons.

Disposition of Coal.—Coal sold for consumption in Alberta totalled 1,356,690 tons; sold for consumption in other Canadian provinces, 2,000,284 tons; sold for consumption in the United States, 27,397 tons; sold to railway companies for locomotive use, 1,969,560 tons; used for making briquettes, 19,472 tons; used for making coke, 97,353 tons; used under colliery boilers, 149,600 tons; used by colliery railways, 6,912 tons; put to stock, 56,290 tons; put to waste, 80,203 tons. The above tonnages include the coal lifted from stock and waste heaps, which is not included in the total output.

COAL PRODUCTION

Calendar Year	Tonnage	Valuation
1930	5,755,911	\$19,379,000.00
1931	4,564,290	13,415,745.00
1932	4,870,030	13,441,193.00
1933	4,714,784	12,197,339.00
1934	4,748,848	12,440,616.53
1935	5,462,973	13,946,338.15
1936	5,696,375	14,720,004.06
TOTALS	35,813,211	\$99,540,235.74
Increases this year in comparison with last	233,402	\$ 773,665.91

PRODUCTION OF COKE AND BRIQUETTES

Calendar Year	Coke (Tons)	Briquettes (Tons)
1930 .....	.....	24,111
1931 .....	.....	15,102
1932	2,183	13,582
1933	49,279	16,104
1934	59,703	15,906
1935	63,428	18,812
1936	65,239	21,015
TOTALS	239,832	124,632
Increases this year in comparison with last	1,811	2,203

Disposition of Electrical Power.—Purchased electrical power used by Alberta coal-mines during the calendar year, 1936 totalled 24,912,243 k.w. hrs.

ELECTRICAL POWER USED FOR OPERATION OF ALBERTA COAL-MINES

Calendar Year	K.w.hrs.
1930	25,003,606
1931	16,918,625
1932	14,875,890
1933	17,611,959
1934	19,447,621
1935	23,111,373
1936	24,912,243
TOTAL	141,881,317
Increase this year in comparison with last	1,800,870

SHALE AND CLAY MINED

During the calendar year, 1936 there were five shale pits in operation. Production from these pits totalled 24,588 tons of shale from which 8,963,384 bricks were manufactured.

SHALE MINED—BRICKS AND TILES MANUFACTURED

Calendar Year	Shale Mined (Tons)	Bricks Manufactured (Number)	Tiles Manufactured (Tons)
1930	67,517	22,007,045	.....
1931	23,855	7,091,080	2,825
1932	8,446	3,444,010	182
1933	3,234	1,221,060	.....
1934	13,561	4,398,032	1,171
1935	20,258	7,349,300	.....
1936	24,588	8,963,384	.....
TOTALS	161,459	54,473,911	4,178
Increases this year in comparison with last...	4,330	1,614,084	.....

Mines Branch Annual Report.—Statistical information covering Alberta's coal-mining activities and production of shale and clay mined for the calendar year 1936 is given in complete detail in the published Annual Report of the Mines Branch, Department of Lands and Mines, for this period which appears as a separate publication to this Report.

STAFF

Before concluding I would like to offer to the staff of this Department an expression of appreciation in return for loyal and intensive application to the various duties for which each member has been responsible.

I would like this expression to cover not only the period under review but also the greater period which dates from the creation of this Department up to now.

Individual detailed reports from the various Divisions of the Department follow.

Your obedient servant,

J. HARVIE,
Deputy Minister.

Edmonton, September 13th, 1937.

Provincial Lands Administration

REPORT OF THE DIRECTOR OF LANDS, D. H. BOLES

Provincial Land Agencies and Sub-agencies.—The land agencies at Calgary, Lethbridge and Peace River, together with seven all-time sub-agencies, continued as heretofore with the transmission of applications to the Administration Office in Edmonton and in maintaining service of a general nature to the public. Sub-agencies during the period of this Report totalled eight in number and were open for business one day each month. Members of the staff of this Division acting as sub-agents on these days, were in attendance at the different locations in which they were situated.

The following applications were received throughout the province during the year:

Cancellation of homestead entries	1,598	Miscellaneous leases	2
Cultivation leases	29	Accrued area leases	69
Grazing leases	71	Fur farming leases	7
Patents	2,262	To lease surface rights	4
Church sites and cemetery sites ..	19	Licenses of occupation	8
School sites	38	Miscellaneous grants	36
To purchase provincial lands	117	Release of habendum clause	1
Townsites	2		

Homestead Entries.—Homestead entries for the year reached a total of 1,432, which included 7 soldier grants. Applications for patent on hand at April 1st, 1936, added to those received during this fiscal year, totalled 4,368. Other business transacted was as follows:

Leases issued:		Surface rights	3
Accrued area	87	Townsites	1
Cultivation	51	Miscellaneous	14
Fur farming	1	Licenses of Occupation	7
Grazing	255		

Land Sales Granted.—Sales of provincial lands granted during the year totalled 132.

Permits Issued.—Grazing permits issued totalled 909 and hay 729.

Accrued Area Leases.—As stated in the previous Report, accrued area leases are being issued to the holders of beneficial rights in adjoining lands. The main object in the granting of such leases is to assist in the destruction of noxious weeds. The following statement shows leases issued and cancellations during the year:

	Leases	Acres
In force, March 31st, 1936	192	21,830
Issued during the fiscal year	87	2,815.72
	279	24,645.72
Cancelled during the fiscal year	34	2,126
In force, March 31st, 1937	245	22,519.72

Cultivation Leases.—The issue of cultivation leases is made on the basis of delivery to the Department of a share of the crop grown on the area leased. The proportion of the Department's share is variable and is dependent on the location of the land, the amount to be determined on a survey made for that purpose.

Due to climatic conditions returns have not been as substantial as anticipated and in order to assist lessees the reduction in the Department's share of the crop referred to in last year's Report was extended to cover this fiscal year.

Cultivation Leases:	Leases	Acres
In force, March 31st, 1936	249	43,496
Issued during the fiscal year	51	8,116
	300	51,612
Cancelled during the fiscal year	12	2,064
In force, March 31st, 1937	288	49,548

Cancellations:

Homestead entries	1,751
Grazing leases	703
Provincial land sales	163
Miscellaneous leases	7

Notifications Issued.—An itemized statement of notifications issued and acreage covered thereby is given in the Technical Division's section of this Report.

Office Transactions:

Total letters received	120,175	Number of stencils cut	288
Daily average received	395.26	Number of pages mimeographed	117,464
Total letters mailed	154,286	Number of translations made for this and other Departments	517
Daily average mailed	522.20	New files made	8,499
Assignments recorded	89		

Land Inspections:

Outstanding April 1st, 1936	1,148
Reports called for during the fiscal year	1,300
	2,448
Reports received during the fiscal year	1,758
Outstanding, March 31st, 1937	690

GRAZING

Grazing Inspections:

Outstanding April 1st, 1936	605
Reports called for during the fiscal year	140
	745
Reports received during the fiscal year	354
Outstanding, March 31st, 1937	391

RANCH GRAZING LEASES

Fiscal Year April 1, 1936 to March 31, 1937

	No. of Ranches	Acreage under Lease	
DOMINION:			
Leases and area at March 31st, 1936	2,374		2,403,639.00
Area withdrawn on request, roadways, etc.		18,881.14	18,881.14
			2,384,757.86
Area added by application		4,088.71	
Area added by amalgamation		11,642.25	15,730.96
			2,400,488.82
<i>Cancellations:</i>			
Straight	144	50,054.28	
Renewed under provincial regulations	67	18,630.38	
Amalgamated under provincial regulations	366	290,362.21	
Amalgamated under dominion regulations	7	11,642.25	
	584		370,689.12
As at March 31st, 1937	1,790		2,029,799.70

	No. of Ranches	Acreage under Lease	
PROVINCIAL:			
Leases and area as at March 31st, 1936.....	856		678,021.00
Area withdrawn on request		2,277.70	2,277.70
			675,743.30
Area added by applications (35).....		33,498.80	33,498.80
			709,242.10
Cancellations:			
Straight	42	13,129.74	
Amalgamations	77	59,076.02	
	119		72,205.76
	737		637,036.34
New Leases:			
Applications (93)	93	52,829.05	
Assignment	1	7,089.32	
Renewal (47 dom.)	17	18,485.40	
Amalgamation, renewal and application (386 dom. 77 prov. 15 app.).....	144	406,886.58	
	255		485,290.35
As at March 31st, 1937.....	992		1,122,326.69

Provincial Grazing Reserve.—Lands in township 1, range 19, west of the 4th meridian have been continued as a reserve for community grazing with a caretaker in charge. Both grazing and water supply are amply sufficient to meet the requirements of the stock which is limited to 500 head. It has been found that by carefully controlled public grazing the grass on this reserve is gradually returning to normal.

Due to drought conditions and lack of feed in the south a limited number of stock was permitted to graze on this reserve during the winters of 1936 and 1937.

The adverse climatic conditions existing during recent years have been taken into consideration by the Department and it has been suggested that it would be advantageous to grazing lessees if consolidation was made of the accounts for taxes and rental.

The necessary authority having been granted, and commencing January 1st, 1937, all taxes as well as rentals were payable to this Department. The accounts are being adjusted to December 31st, 1936, and on January 1st, 1937, the annual rental and taxes of a like amount became payable. Authorization has also been granted whereby the arrears of rentals and taxes may be consolidated and payments spread over a term of years.

It is the intention, on receipt of the required information from the municipal authorities and on adjustments of the accounts, to furnish each lessee with a statement showing the standing of the account in connection with each lease.

Coutts Quarantine Reserve.—Negotiations have been completed and 9,600 acres in the Coutts Quarantine Reserve in townships 1 and 2, ranges 15 and 16, west of the 4th meridian have been transferred by the federal authorities to the Province of Alberta for administration purposes. A survey will be made in order to determine the disposition which should be made of these lands.

Provincial Parks.—The Department is continuing to set aside all lands found suitable for parks or recreational purposes, thereby increasing the areas turned over to the control of the Provincial Parks Board.

School Lands Administration

REPORT OF THE SUPERINTENDENT OF SCHOOL LANDS,
J. W. STAFFORD

Report for the fiscal year ending March 31st, 1937, in connection with the administration of school lands, is submitted herewith.

In the previous Report attention was called to the amendment to The Provincial Lands Act, which gave the Minister the power to give effect to any compromise, adjustment or arrangement made pursuant to The Farmers' Creditors Arrangement Act, 1934, in respect to any agreement for the sale of school lands or to any sum payable under any such agreement on account of principal and interest or either of them.

No results were obtained in connection with this amendment owing to the fact that the federal government has apparently not yet seen fit to grant the Board of Review under the Farmers' Creditors Arrangement Act authority to make compromises in connection with school lands' sales.

A gratifying increase is shown in the revenue for this year as compared with the fiscal year ending March 31st, 1936.

The total net revenue for the present year is \$349,563.37, as compared with \$254,142.49 during the previous year. Of this revenue the sum of \$55,799.89 was paid on account of principal on school lands' sales and the balance \$293,763.48 comprises miscellaneous moneys such as interest, timber dues, grazing and other rentals, etc.

This increased revenue is chiefly attributable to the fact that grain prices were considerably higher this year than last with the result that the grain received by the Department on crop share leases netted a larger revenue and in many cases purchasers of school lands were in a position to make substantially larger payments than in the previous year.

No general auction sales were held during the fiscal year under review, but in numerous cases requests were made by settlers to offer for sale certain individual quarter sections in order that they might extend their operations. The Department saw fit to grant these various requests with the result that 36 parcels of land, comprising a total area of 5,591,305 acres, were offered for sale realizing a sale value of \$55,261.05, being an average of \$9.88 per acre. The highest price received for any parcel was at the rate of \$18.75 per acre and the lowest price realized was \$6.00 per acre.

During this year 162 grazing and cultivation leases were issued comprising a total area of 29,750,015 acres and in the same period 26 leases comprising an area of 5,317.85 acres were cancelled.

In connection with timbering operations, 19 timber berths were disposed of by sale and from these berths, together with other berths previously disposed of, there was manufactured the following material: 4,340,432 Fbm. of lumber; 11,840 railway ties; 182 cords of wood and 15,000 shingles.

A total of 532 timber permits was issued under authority of which the following material was cut: 5,668 lineal feet logs; 998,986 Fbm. of lumber; 700 fence posts; 270 fence rails; 2,740 cords of wood; 13,235 railway ties; 494 telephone poles; 98,350 lath and 1,000 shingles.

Timber seizures numbered 24, covering the following material: 710,500 Fbm. of lumber; 896 lineal feet logs; 94 cords wood; 947 railway ties; 200 telephone poles; 700 fence posts; 56,000 lath.

In connection with hay, 357 permits were issued authorizing the cutting of a total of 4,366 tons of hay and under authority of which 3,535 $\frac{1}{4}$ tons were cut.

Two hay seizures were made covering a total quantity of 42 tons.

In addition to maintaining a complete set of land records and a complete filing system in this Division, the following further transactions were completed in connection with the administration of school lands: Assignments registered, 87; cultivation and grazing leases issued, 162; cultivation and grazing leases cancelled, 26; grazing permits issued, 2,217; hay permits issued, 357; timber permits issued, 532; timber seizures, 24; hay seizures, 2. Letters dispatched totalled 35,839.

Mining Lands Administration

REPORT OF THE SUPERINTENDENT OF MINING LANDS, J. W. HAMILTON

The Mining Lands Division as stated in last year's Report is charged with the administration of regulations governing the disposal of mineral rights, solid, liquid and gaseous, which are the property of the crown in provincial and school lands. Additional duties of the Division include those of Mining Recorder for the Edmonton District.

As previously intimated, all mining lands' leases, petroleum and natural gas prospecting permits and special permits are prepared and issued by the Division. Applications are received at this office and at the offices of the different provincial land agencies, the latter forwarding same to this Division for approval and further action. In connection with this work complete sets of township plans and registers are kept up to date.

The following is a list of leases dealt with from October 1st, 1930, date of the transfer of the natural resources to the Province of Alberta, to March 31st, 1937:

Type of Lease	Active at date of transfer	Issued	Divided	Cancelled	Renewed	Active at March 31st, 1937
Petroleum and natural gas, provincial lands	16,899	4,307	80	16,012	91	5,183
Petroleum and natural gas, school lands	1,964	489	1	1,976	1	477
Petroleum and natural gas, crown reserve	5	20	...	11	...	14
Coal, provincial lands	620	273	2	401	86	408
Coal, school lands	60	20	...	41	5	34
Quarrying	45	19	...	27	...	37
Quartz mining	4	...	...	...	...	4
Salt and gypsum	1	1	...	1	...	1
Bituminous sands	4	...	...	2	...	2
Miscellaneous	1	2	...	...	...	3
Dredging	32	4	...	28	...	8
TOTALS	19,635	5,135	83	18,499	183	6,171

ACREAGE CONTAINED IN ABOVE LEASES

Type of Lease	Active at date of transfer	Issued	Cancelled	Renewed	Active at March 31st, 1937
Petroleum and natural gas, provincial lands	2,263,076	603,241	2,141,665	13,107	711,545
Petroleum and natural gas, school lands	191,726	57,081	198,707	420	49,680
Petroleum and natural gas, crown reserve	6,160	22,561	13,441	...	15,280
Coal, provincial lands	236,984	102,205	156,633	69,437	113,119
Coal, school lands	9,570	1,642	4,901	826	5,485
Quarrying	1,675	368	606	...	1,437
Quartz mining	182	...	...	...	182
Salt and gypsum	200	6,721	200	...	6,721
Bituminous sands	3,952	...	2,040	...	1,912
Miscellaneous	3,560	313	...	...	3,873
TOTALS	2,717,085	794,132	2,518,193	83,790	909,234
Dredging (in miles)	145	12	125	...	32

STATEMENT OF BUSINESS TRANSACTED, 1936-37

PETROLEUM AND NATURAL GAS

	Number	Acres
Petroleum and natural gas leases issued on provincial lands	2,482	238,581.34
Petroleum and natural gas leases issued on school lands	275	22,437.25
Petroleum and natural gas leases issued under crown reserve regulations ..	1	160
Petroleum and natural gas leases cancelled and relinquished on provincial lands	471	124,942.74
Petroleum and natural gas leases cancelled and relinquished on school lands ..	69	14,821.01
Petroleum and natural gas leases cancelled under crown reserve regulations ..	5	7,840
Permits to prospect issued	41	483,171.31
Permits to prospect cancelled	53	141,531.86
Assignments registered	338	

Fees, rentals and bonus collected	\$437,331.49
Royalties collected	108,935.28

\$546,266.77

TOTAL

COAL

	Number	Acres
Coal leases issued on provincial lands	25	1,692.25
Coal leases issued on school lands		
Coal leases cancelled and relinquished on provincial lands	12	1,309.33
Coal leases cancelled and relinquished on school lands	2	320

Fees and rentals collected	\$121,351.61
Royalties collected	193,810.33

TOTAL

\$315,161.94

MISCELLANEOUS

Permits to collect bitumen	1
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STATEMENT OF BUSINESS TRANSACTED WITHIN THE EDMONTON DISTRICT 1936-37

	Number	Acres
Applications for petroleum and natural gas leases	148	15,870
Applications for petroleum and natural gas permits to prospect	16	251,475
Applications for coal-mining leases	15	728
Applications for salt leases	1	6,721
Applications for bituminous sand leases	1	336
Domestic coal permits issued	15	
Quartz mining claims granted	3	
Quartz mining certificates of work issued	7	
Quartz mining certificates of partnership issued	1	
Powers of Attorney (placer) registered	1	
Placer claims granted	5	
Powers of Attorney (placer) registered	2	
Bar-digging permits issued	1	
Sand, stone and gravel permits issued	4	

PETROLEUM AND NATURAL GAS

Development of Leases.—Expenditures incurred in actual development of an area acquired under lease may under the petroleum and natural gas regulations be accepted in satisfaction of rentals, which should otherwise be paid in cash. Under this provision, rentals due to the amount of \$386,702.91 were satisfied by such expenditures, and so reduced the revenue of the Division to that extent. The total rental revenue in cash together with expenditures accepted in lieu of rental of petroleum and natural gas rights amounted to \$900,643.52 for the year.

Disposal by Public Tender.—The disposal by public tender of petroleum and natural gas rights in areas comprising cancelled leases is provided for in the regulations and this method of disposal has resulted in payment to the Department of the sum of \$76,360.56 as bonus during the year, of which \$49,302.60 was on school lands and \$27,057.96 on provincial lands.

Number and Area of Leases.—On the transfer of the natural resources, October 1st, 1930, 18,868 leases were transferred to provincial administration comprising 2,460,962.48 acres. Since that date 4,816 leases comprising 672,883.55 acres have been issued by the Alberta Government. During the year under

review 2,858 leases were issued, covering 261,178.59 acres. There are now in force a total of 5,674 leases embracing an area of 776,505.5 acres.

Prospecting Permits.—Prospecting permits are issued for periods of six and twelve months and after the prospecting work required to be done is completed to the satisfaction of the Department the permittee is privileged to apply for leases covering the area under permit or to relinquish the area entirely. Under these regulations there are now active 38 prospecting permits covering an area of 585,882.78 acres.

Crown Reserves.—By Order in Council, No. 225/37, dated March 3rd, 1937, regulations were issued for the establishing of crown reserves in all crown lands in unsurveyed territory and lands comprising Alberta forest reserves. In these areas a locator has to stake twice the area he desires to lease, the said area being divided into equal parts of equal value from surface indications, for the discovery of oil. He may apply for a lease of one half of the area and the other half shall be reserved to the crown.

Also all the odd numbered sections of land situated north of the north boundary of township 52 are reserved and constitute crown reserves.

A ministerial order was issued on December 5th, 1936 extending as follows the area of the land in Turner Valley within which oil or natural gas in remunerative quantities has been discovered:

Township 18, Range 2, West 5th Meridian:
Sections 16, 17, 20, 21; the west half of 22; sections 27, 28, 29, 32, 33 and 34.
Township 19, Range 2, West 5th Meridian:
Sections 3, 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21, 29, 30, 31 and 32.
Township 19, Range 3, West 5th Meridian:
The north-east quarter of section 13, sections 24 and 25; the north-east quarter of section 35; Section 36.
Township 20, Range 2, West 5th Meridian:
Sections 6, 7 and 18.
Township 20, Range 3, West 5th Meridian:
Sections 1 and 2; the north half of section 10; sections 11, 12, 13, 14 and 15; the east half of section 16; the east half of section 21; sections 22, 23, 24, 25, 26 and 27; the east half of section 28; sections 33, 34 and 35.
Township 21, Range 3, West 5th Meridian:
Sections 2, 3 and 4.

COAL

The disposal of coal rights is made on the basis of terminable leases which call for an annual rental of \$1.00 per acre and subject to a royalty of 5c per short ton on production.

Leases Issued.—During the year the following coal-mining leases were issued:

	Number	Acres
Provincial lands	25	1,692.25
School lands .....	.....	.....
	25	1,692.25

Coal-mining leases in force at the end of the fiscal year totalled 442, comprising 118,604.25 acres. During the year 3,360,183 tons of coal, subject to royalty, were mined, as compared with 3,867,139 tons of royalty-bearing coal mined in the previous fiscal year.

Coal for Domestic Use.—The total number of permits to mine coal for domestic purposes was 58 for the year. A fee of \$1.00 is charged for a permit of this nature with royalties based at 10c per ton. Permits of this nature terminate on the 31st of March in each year and are limited to a maximum area of one acre. The amount of coal extracted under these permits for the year was 2,045.5 tons.

Requirements for New Leases.—Inspections and reports are made on the locations of coal-mining leases as shown on all applications. New leases are

granted only if required for the continuation of existing operations or in the few instances where the locality in which the area applied for is so situated that it cannot be supplied economically from an existing mine.

Crown royalties which have been collected on coal mined from lands in the Province of Alberta during the past 29 years are given in the following statement:

Fiscal Year	Royalty Paid	Fiscal Year	Royalty Paid
1907-1908	\$ 7,621.67	1924-1925	148,979.10
1908-1909	5,322.39	1925-1926	188,277.94
1909-1910	153,559.98	1926-1927	218,150.10
1910-1911	218,932.88	1927-1928	231,757.96
1911-1912	104,894.55	1928-1929	254,616.27
1912-1913	142,997.79	1929-1930	248,083.71
1913-1914	147,198.75	1930-1931	105,126.51
1914-1915	104,489.77	1931-1932	145,170.33
1915-1916	67,190.17	1932-1933	143,800.01
1916-1917	149,447.82	1933-1934	193,527.82
1917-1918	144,634.75	1934-1935	176,122.43
1918-1919	175,687.66	1935-1936	186,691.23
1919-1920	181,641.80	1936-1937	193,810.33
1920-1921	190,545.80		
1921-1922	185,436.88	Total	<u>\$4,725,539.76</u>
1922-1923	171,723.83		
1923-1924	210,389.53		

BITUMINOUS SANDS

Under the bituminous sand regulations applications for a location can only be considered if the applicant has submitted satisfactory evidence which may establish his right to the use of a process whereby oil or other hydrocarbons may be recovered from the sands, such process in the opinion of the Minister giving promise of developing a successful industry. The applicant, on compliance with this stipulation, may be granted a permit to proceed with development. After the process of extraction has been proven and established, a terminable lease may be granted.

At the close of the year one permit, comprising 9,718 acres and 2 leases, covering 1,912 acres, were in force.

An area comprising some 15,000 square miles has been reserved in the McMurray district for the purpose of bituminous sand development. This area is considered to be one of the greatest richness and the overburden comparatively light.

QUARTZ MINING

The granting of quartz mining claims is subject to an annual expenditure for development work. With the establishment of satisfactory progress and the proper survey of the claim a lease is issued for a period of twenty-one years, the products recovered being subject to payment for royalty. The recording of 3 quartz mining claims was made during the year. There are at present in force 4 quartz mining leases comprising an area of 181.8 acres.

QUARRYING

Quarrying leases on crown lands are issued under the regulations for limestone, granite, slate, marble, gypsum, marl, gravel, sand, clay, volcanic ash or any building stone. At the close of the year a total of 37 such leases were active, which covered an area of 1,437.69 acres.

DREDGING

The 8 leases to dredge for minerals in the beds of rivers, reported last year, were active during this period. These leases, as previously stated, comprise portions of the beds of the Macleod and Athabaska rivers and cover a total river stretch of 32 miles.

SODIUM CHLORIDE (Common Salt)

A permit to prospect for sodium chloride was issued last year and the permittee having fulfilled all the requirements was issued a lease this year. A lease comprising 6,720.82 acres was issued for a period of twenty-one years.

MISCELLANEOUS LEASES

During the year two special leases were issued for the removal and disposal of sodium sulphate (glauber salts) which occurs in a comparatively pure condition and in the form of a natural accumulation in certain sloughs and shallow lakes. Both leases were issued for a period of five years and comprise a total of 32.56 acres.

SPECIAL PERMITS

One special permit was in force during this period for the collecting of bitumen issuing from two northern wells. These rights were disposed of by public tender to the bidder offering the highest royalty.

Many requests for information on the province's natural resources were received during the year by this Division. Considerable investigation was frequently necessary in individual cases, a number of the enquiries being of a nature which could not be adequately replied to by the sending of printed reports.

Technical Division

REPORT OF THE SUPERINTENDENT OF THE TECHNICAL DIVISION, T. W. DALKIN

Notifications (Land Patents).—The number of notifications issued during the period under review was the second highest since the transfer of the natural resources, 1935-36 being the peak year. During 1936-37, 325,615.379 acres and 127½ subdivision lots, located in government townsites and in townsites where lots were transferred to the jurisdiction of this Department from the Department of Municipal Affairs on account of tax recovery proceedings, were patented.

Hereunder is set out in detail the nature of the grants and the numbers and areas of same:

Nature of Grant	Notifications	Area (Acres)
Homesteads	1,318	207,170.264
Second homesteads	546	84,970.01
Soldier grants	81	12,377.18
School lands sales	40	2,426.23
Sales (including lots in subdivisions)	129	2,327.95
Special grants	94	13,154.965
School land grants	7	1,845.50
Pre-emptions	3	475.28
Exchange of lands	4	780.50
Canadian Pacific Railway	2	65.13
Lacombe & Northwestern Railway	1	5.26
Northern Alberta Railways	5	11.73
Canadian Northern Western Railway	1	5.38
TOTALS	2,231	325,615.379

Details of Sales in Subdivisions	Notifications	No. of Lots	No. of Blocks
Canmore	32	33	....
Taber (3876 R)	1	1	....
Johnson's Addition to Taber (3876 R)	1	1	....
Walsh (3644 B)	1	1	....
Coleman (6808 CU)	7	9	....
Peace River Landing Settlement (7361 AH) ..	4	25	....
Peace River Landing Settlement (5617 BK) ..	1	3	....
Maple Leaf (7242 AI)	18	32	....
Maple Leaf (7242 AI)	1	..	1
Maple Leaf (4480 Y)	1	2	....
Maple Leaf (6224 Y)	4	5	....
McMurray Settlement	1	1	....
Bellevue (7134 AI)	2	4	....
Hillcrest (5150 S)	1	1½	....
Jarvie	2	3	....
Crowfoot (4811 N)	1	1	....
Patricia (1217 BA)	1	1	....
Carcajou Settlement	1	1	....
Seven Persons (610 W)	1	2	....
Rosemary (988 BA)	1	2	....
TOTALS		127½	1

The four grants of land to the Northern Alberta Railways Company were necessitated on account of dangerous slides in the vicinity of the Smoky River and for bridge protection work in and around townships 78 in ranges 23 and 24, and townships 77 in range 24, west of the 5th meridian. The other grant was for an additional area for station grounds in the south-west quarter of section 1, township 74, range 8, west of the 5th meridian.

The notification issued to the Canadian Northern Western Railway Company was for ditching purposes.

The two grants set out in the schedule in favour of the Canadian Pacific Railway Company cover the main line of that company west of Calgary, in township

24, range 8, and township 25, range 10, west of the 5th meridian. Considerable correspondence passed between this office, the Dominion Government and the Canadian Pacific Railway Company and it was ascertained that grants were not issued for these areas by the Dominion Government on account of the fact that the only plan of the railway in existence showed the same passing through unsurveyed lands. As the lands affected have been subdivided for some considerable time, it was found necessary to prepare a new plan of survey which has been duly recorded in this Division and now forms the basis for the notifications in favour of the railway company.

The notification in favour of the Lacombe and Northwestern Railway Company was for right of way purposes only.

Homestead Entries.—During the year 1,295 homestead entries, 129 second homestead entries and 7 soldier grants were checked in as far as the areas were concerned. Where railway rights of way, roadways, power transmission lines, pipe-lines and other previously alienated lands affected these homesteads, reservations were noted accordingly, and the entries granted subject to these reservations. Many applications were received from homesteaders to obtain entry to lands on both sides of the rivers, claiming that such rivers could be considered fordable in as far as farming operations were concerned.

Revested Soldier Settlement Board Lands.—It was ascertained that several quarter sections, which were transferred by the Soldier Settlement Board to this Department owing to the loans against them being withdrawn, were located in municipal districts. Representations were made by the Department of Municipal Affairs on behalf of these districts with the result that notifications were issued for these parcels of land in favour of the municipal districts in which they were situated.

Roadways.—There was a decided increase in the number of plans of surveyed roadways filed in this Division. These plans were forwarded through the Department of Public Works in order that reservations could be made for the land required for roadway purposes. In all, 988 parcels of land were affected. Some of these surveys crossed over lands alienated by sales, etc. and in such cases quit claims were obtained and compensation exacted. In other cases it was found necessary to abandon old surveys in order to permit of the filing of plans of the new roadways. The legal descriptions in leases and other instruments were also amended where new roadways affected same.

Licenses of Occupation.—Favourable consideration was given to an application from the Abasand Oils, Limited for a roadway affecting certain crown lands in the McMurray Settlement with the result that a license of occupation was issued in favour of that company in order to facilitate the development of the bituminous sands.

The Canadian Pacific Railway Company was granted a license of occupation for a railway bridge site comprising a portion of the bed of the Red Deer River in the south-west quarter of section 28, township 27, range 18, west of the 4th meridian.

For some time licenses of occupation have been granted to certain applicants carrying on commercial operations on the shores of Sylvan Lake. These licenses, however, are now issued for one year only on account of the fact that a definite application has been received on behalf of the Dominion Government from the Department of Public Works at Winnipeg. A provisional reservation has been entered in the records affecting the crown lands at Sylvan Lake pending the receipt of a plan of survey definitely showing the area required for this breakwater.

Licenses of occupation have been issued in favour of the Department of Public Works of the Dominion Government for wharf sites located in the Slave River opposite river lot 17, Fitzgerald Settlement, in the bed of Lake Wabamun at Seba Beach and in the bed of South Cooking Lake at a location known as Wellington Beach. The wharfs have already been constructed at these locations and plans of survey have been recorded in this Division.

Middle Creek Reservoir.—At the present time correspondence is in progress with the Department of Agriculture of the Dominion Government at Regina in response to an application for a license of occupation under the Prairie Farm Rehabilitation Act. This license will affect 365 acres, more or less, near the Saskatchewan boundary in township 5, range 1, west of the 4th meridian, and is the outcome of the drought conditions which have been experienced in the south for the past number of years. This project is known as the Middle Creek Reservoir.

Change in Boundary between Elk Island Park and Cooking Lake Forest Reserve.—In last year's report reference was made to the change in the south boundary of Elk Island Park and the north boundary of Cooking Lake Forest Reserve, due to a revised survey of the provincial highway, the new provincial highway now forming the boundary between these two areas. After the exchange of much correspondence between this Department and the Commissioner of National Parks of the Department of the Interior an Order in Council No. 933/36 was issued on the 30th of June, 1936, which authorized the transfer of certain provincial lands in the Cooking Lake Forest Reserve in township 53, range 20, west of the 4th meridian, containing 148.77 acres, more or less. In return for these areas the authorities at Ottawa have agreed to submit a bill to the dominion parliament to withdraw from Elk Island Park certain areas lying south of the highway and transfer the same to the province.

Change in Boundary of Banff National Park.—In certain correspondence taking place between this Division and the Deputy Minister of the Department of Mines and Resources it has been agreed to amend the boundary of the Banff National Park at the Spray River. This adjustment has been found necessary as a result of the surveyor in making the survey on the ground following the description as set out in The National Parks Act. Apparently this description did not follow the conditions on the ground, and the surveyor, under the circumstances, deemed it advisable to follow the main topographical features. As soon as a plan of survey of the revised boundary is received, an order in council will be submitted for approval of this small area.

Proposed Indian Reserves.—Representations have been made to this Department by the Deputy Superintendent-General of the Department of Indian Affairs in order to acquire an area comprising 52,398.20 acres, more or less. This area comprises several parcels of land in the north near the Chipewyan Settlement which can be classified as marsh lands. It is desirous from the information received that these marsh lands be used as trapping and hunting grounds for the Chipewyan Indians.

Lands Transferred from the Dominion to the Province.—There is still considerable correspondence carried on with Ottawa in connection with the disposition of certain lands. During the past year the following areas were transferred from the Dominion to provincial control.

(1) Privy Council Order, No. 950, dated April 20th, 1936, transferred what was known as the Coutts Quarantine reserve to the province. This reservation comprises the following lands:

In Township 1, Range 15, West 4th Meridian:

Rectangular parcel in south-west corner of n.w. $\frac{1}{4}$ sec. 4, measuring 1,800 feet east and west and 1,205 feet north and south, excepting railway right of way.

Part n. $\frac{1}{2}$ sec. 5, east of railway right of way.

Pts. n. $\frac{1}{2}$ and s.e. $\frac{1}{4}$ sec. 7, east of railway right of way.

All of section 17.

N. $\frac{1}{2}$ and s.e. $\frac{1}{4}$ sec. 18 and pt. s.w. $\frac{1}{4}$ 18, east of railway right of way.

All sections 19, 20, 30, 31, 32 and 33.

In Township 2, Range 15, West 4th Meridian:

N.W. $\frac{1}{4}$ and s. $\frac{1}{2}$ sec. 4 and pt. n.e. $\frac{1}{4}$ sec. 4 south of Milk River.

S. $\frac{1}{2}$ sec. 5 and pt. n. $\frac{1}{2}$ sec. 5 south of Milk River.

S. $\frac{1}{2}$ sec. 6 and pt. n. $\frac{1}{2}$ sec. 6 south of Milk River.

Pt. s. $\frac{1}{2}$ sec. 7 south of Milk River.

Pt. s. $\frac{1}{2}$ sec. 8 south of Milk River.

Pts. n.w. $\frac{1}{4}$ and s. $\frac{1}{2}$ sec. 9 south of Milk River.

In Township 1, Range 16, West 4th Meridian:

Pts. n.w. $\frac{1}{4}$ and e. $\frac{1}{2}$ sec. 13 east of railway right of way.

E. $\frac{1}{2}$ sec. 24 and pt. w. $\frac{1}{2}$ sec. 24 east of railway right of way.

E. $\frac{1}{2}$ sec. 25 and pt. w. $\frac{1}{2}$ sec. 25 east of railway right of way.

Pt. e. $\frac{1}{2}$ sec. 35 east of railway right of way.

N. $\frac{1}{2}$ and s.e. $\frac{1}{4}$ sec. 36 and pt. s.w. $\frac{1}{4}$ sec. 36 east of railway right of way.

(2) By Privy Council, Order No. 1847, dated July 23rd, 1936, the province gained control of lots 1, 2, 3, 4, 17, 18, 19 and 20, block 71, and lot 20, block 49, Canmore.

(3) Privy Council, Order No. 1112, dated May 11th, 1936, transferred section 17, township 15, range 4, west of the 4th meridian, formerly used for dipping vat purposes, to the province.

(4) Part east half and legal subdivisions 3 and 6 of section 2, township 14, range 1, west of the 5th meridian were formerly used for dipping vat purposes and were transferred to the province by Privy Council, Order No. 1115, dated May 11th, 1936.

Flood at McMurray.—Upon representation being made to the Department on behalf of the residents at McMurray, a government official carried out an inspection of the situation in May. It was found with the breaking up of the ice on the Athabaska and Clearwater rivers, that the flood waters from the Athabaska backed up the Clearwater River causing much damage and distress to residents of a location known as the "Prairie". As a precautionary measure in the event of future spring floods, it was decided to lease to these residents government lands on a location above the flood level. Most of the inhabitants of this area participated in this arrangement which seemed a satisfactory solution to all concerned.

Mountain Slide at Frank.—Continuing the policy of acquiring lands declared unsafe for residential purposes, lots 1 to 4, block 9, Bellevue, Plan 4590 A.L., were transferred to this Department by the Department of Public Works. In this way the disposition of the lots is controlled and building operations prevented in view of the danger of new slides.

Map of Alberta, Scale 17½ miles to the Inch.—A re-issue of the map of Alberta, scale 17½ miles to the inch designed by this Division was published comprising 1,000 copies in black and blue and 2,000 copies in black and blue showing in red the provincial highway system. There has been a great demand for this highway map.

Map of Alberta, Scale 16 miles to the Inch.—Sometime ago this Division was advised that it was the intention of the Dominion Government to issue a map of the Province of Alberta, scale 16 miles to the inch, similar to the maps that have been issued covering the provinces to the east. The latest enquiry regarding this Dominion map reveals, however, that it will be some time before it will be available.

Geological Map of Alberta.—At the present time this Division is working in co-operation with Dr. J. A. Allan, Dept. of Geology, University of Alberta, in

connection with a new geological map. There have been many enquiries for an up to date map of this nature from various parties on the continent due to the increased activity and interest in the resources of the province. The map will be drawn upon a scale of 20 miles to the inch and will be printed in colours. The topography is to be shown by brown contour lines with 400 foot intervals up to 5,000 feet.

New Surveys.—Preliminary prints of the new surveys of the west half of township 69, range 6, portions of township 70, range 6, township 76, range 12, and township 76, range 13, all west of the 6th meridian, were received from the Director of Surveys together with the statutory declarations of the squatters upon these lands.

It was ascertained upon examination of a plan of survey of a road diversion that the monuments upon the ground did not agree with the latest plan of survey of township 80, range 3, west of the 6th meridian, in and around sections 5 and 8 adjoining Indian Reserve, No. 152 A. A request is being made for a reservation of this area.

Squatters at McLennan.—A preliminary plan of subdivision of the lands occupied by the squatters on the north-east quarter of section 29, township 77, range 19, west of the 5th meridian at McLennan, referred to in last year's Report, has now been received. This subdivision consists of 4 blocks comprising 97 lots. It is intended, when final plans of survey have been received, to dispose of these lots by auction to the occupants of the land.

Upon the examination of a plan of survey of a roadway through sections 16 and 21, in township 70, range 10, west of the 6th meridian, it was revealed that the course of the Red Willow River on the ground differs greatly from the location of the river as shown upon the official plan of survey of the township. A request is therefore being made for a survey for a new plan of this area.

Caldwell Townsite.—Due to representations which indicated the loss suffered by miners through floods in the Willow Creek area, the Department as a measure of relief undertook to bear the expense of a survey of a new townsite known as Caldwell, located on part of the south-west quarter of section 7, township 28, range 18, west of the 4th meridian. In undertaking to bear this expense it was understood that the owner of the land was to provide each miner with a lot in the subdivision free of charge.

Interprovincial Boundary and Northern Boundary of Province.—Owing to the mining activity along the north shore of Lake Athabaska adjoining the Alberta-Saskatchewan provincial boundary consideration has been given to the necessity of completing the survey of the fourth meridian northwards to the northern boundary of the province. A request has been made to the Director of Surveys to consult with the Saskatchewan and Dominion authorities in order to complete the survey of this meridian.

At the same time it has also been deemed advisable to survey the 60th parallel so that the boundary between Alberta and the Northwest Territories may be established. The 60th parallel is an astronomical line controlled by sets of observations taken at intervals along the boundary. These observations must be computed before the line can be run on the ground and in this connection the Director of Surveys was advised to arrange with the Surveyor-General to make the necessary observations which must be done in advance of the actual running of the line.

General.—The unusual activity in the Turner Valley and other oil fields of the province reacted to a great degree on this Division with the result that four

draughtsmen were assigned to cope with the rush of applications. On this account other work was unavoidably held up. The situation was further aggravated by the resignation during the year of three members of the staff, all of whom left to take more remunerative positions. As there is no doubt that with the betterment of conditions more situations outside the service are becoming available, it would seem opportune in the interests of efficiency to give consideration to a revision of the salary schedule of this Division which is admittedly low in view of the responsible and exacting nature of the work involved.

During the year close contact has been maintained with other Departments in as far as map requirements are concerned, including the new Department of Trade and Industry. The personal and written requests for maps and relevant information have increased to such an extent that the whole of one man's time is practically taken up with these enquiries.

There has also been a large increase in the number of maps, plans, sketches, graphs and legal descriptions prepared by the Division and correspondence in connection therewith.

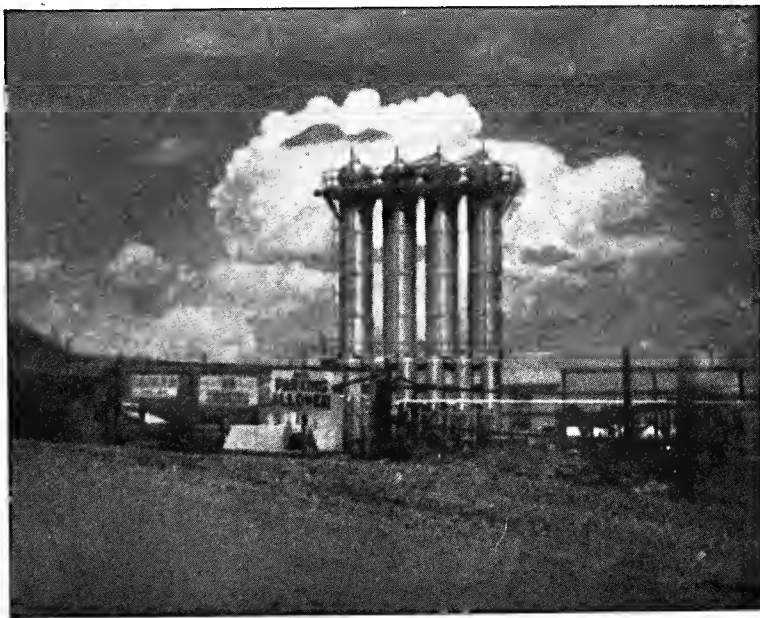
Petroleum and Natural Gas

REPORT OF THE DIRECTOR OF PETROLEUM AND NATURAL GAS, C. W. DINGMAN

The picture of Alberta's oil resources changed rapidly during the year. On June 16th, 1936, Turney Valley Royalties, No. 1 well, was completed at 6,828 feet, a distance of 432 feet in the Madison limestone. Where other limestone wells had started production with a roar of gas in quantities ranging up to twenty or thirty million cubic feet per day and conveying principally a volatile naphtha which must have been borne in the reservoir as a vapour, this well, after ejecting the last of the column of drilling mud, merely gave out a quiet flow of gas of about two million cubic feet a day, but carrying a spray of oil which in the first fourteen days of production put an average of 850 barrels into the tanks. Its gravity (about 45° to 47°) and general characteristics showed that it must have been in a liquid phase in the natural limestone container. This well proved the existence of a pool of liquid phase oil lying down the west flank of Turner Valley and explained the gradual change that had been occurring for some time at certain wells which originally produced a high gravity naphtha and subsequently a discoloured product of fairly high gravity with later a heavier product containing wax and lubricating fractions.

The base of the crude is intermediate (wax bearing) and it is sour (contains sulphur as hydrogen sulphide and mercaptans).

Operators were encouraged by the discovery in Turner Valley Royalties, No. 1, and twenty-eight permits to drill were issued during the remainder of the fiscal



Part of Royalite absorption plant, No. 1

year for wells in Turner Valley, with some impetus being given to drilling in other parts of the province. Total permits for the fiscal year were thirty-six as compared with eleven for the previous year.

Turner Valley completions arranged in order of dates of completion during the fiscal year were as follows:

	Depth	Date	Produces
Union Drilling Freehold, No. 1.....	6,462	May 1, 1936	Naphtha, small,
Turner Valley Royalties, No. 1.....	6,828	June 16, 1936	Crude, large,
British Dominion, No. 4.....	6,423	July 18, 1936	Semi-crude, medium,
Highwood Sarcee, No. 2.....	6,560	July 31, 1936	Naphtha, small,
Sovereign, No. 1.....	6,234	November 15, 1936	Naphtha, large gas,
Foundation, No. 1.....	6,474	November 19, 1936	Crude, large,
Sterling Pacific, No. 3.....	6,788	December 1, 1936	Crude, medium,
Renfrew, No. 1.....	6,550	December 10, 1936	Naphtha, small,
B and B Royalties, No. 1.....	6,609	February 2, 1937	Crude, large,
Westside, No. 1.....	6,374	March 2, 1937	Crude, medium,
Newfold, No. 1.....	6,254	March 5, 1937	Naphtha, small,
Dalhousie, No. 8.....	6,911	March 27, 1937	Failure, abandoned.

While not possible in all cases from returns made to the Division to distinguish between crude and naphtha, the following estimations show trends. Quantities are in barrels:

	Crude	Separator Naphtha	Plant Recoveries	Limestone Total
1935-36	137,287	528,089	531,117	1,196,493
1936-37	501,017	280,876	621,718	1,403,611

As in the previous year it will be seen that without liquid phase oil and increased plant recoveries there would have been a drastic reduction in total. In the case of liquid phase oil, five new producers greatly changed the situation.

For the calendar year, 1936 the apparent demand for oil in Alberta, after eliminating changes in storage, imports and exports, was 2,409,510 barrels as compared with 2,337,401 barrels for 1935. These figures include not only sales but refining losses both on oil used in the province and on oil refined within the province for export. A table showing total production of all fields within the province is given later.



Part of Royalite absorption plant, No. 1, and scrubbing plant

DRILLING ACTIVITY OUTSIDE TURNER VALLEY

Arca, No. 1, where an interesting unitized scheme had been drawn up, was still drilling at the close of March, 1937 at a depth of 8,924 feet, making it the deepest well drilled in Canada. Some showings of oil and gas were obtained but not on a commercial scale and it was abandoned shortly after at a total depth of 8,988 feet.

New Valley, No. 1, reached a depth of 7,255 feet with good showings of oil in the Cardium series. This test, located on the east flank of Turner Valley, is most interesting although the discoveries are not as yet commercial. Drilling was continuing at the close of the fiscal year. A little further east, Ranchmen's, No. 1, continued drilling below 7,079 feet.

In the foothills area west of Turner Valley, Roxana started an interesting test, reaching the Madison at shallow depth. By the end of March a depth of 2,353 feet was attained with operations still in progress.

Moose Oils, No. 2, not far from the No. 1 well, drilled to 740 feet and was preparing to resume after being shut down by winter weather.

Elbow, No. 1, continued drilling and attained at the close of the fiscal year a depth of 4,953 feet in an interesting location in the disturbed belt.

Banner, No. 1, south and west of Turner Valley, made some progress and Pekisko Hills, No. 1, was continued to 4,400 feet.

Farther north on the Red Deer river west of Olds, Hunter Valley, No. 1, attained a depth of 7,218 feet by the end of March and operations were continuing.

South, in the Lundbreck area, Maxmont and Marjon wells made progress. Near Cardston, Franco, No. 1, reached a depth of 4,580 feet without any substantial discovery of oil or gas. Near the Montana border Del Bonita Associated was drilling at 3,988 feet and Sunshine at 5,254 feet. Terminal, No. 1, was deepened to 5,131 feet. Near Pincher Creek, Weymarn drilled to 5,960 feet and was testing and drilling deeper.

In the vicinity of Taber, Plains, No. 1, was drilling at 3,212 feet and two further wells were planned for the coming season.

The Canadian Western Natural Gas Company drilled its No. 6 well at Brooks to augment the gas supply for the town.

Near the Red Deer river, north of Brooks, the Dominion Government started a well for gas, but the test was discontinued before reaching potential horizons.

A joint test by McDougall-McLeod Companies in the vicinity of Comrey was abandoned at 3,880 feet.

A well, known as Premier, No. 1, was started near Cremona. Little progress was made and at the end of the year it was preparing to resume drilling as Spindletop, No. 1.

In the Wainwright area no move was made to exploit the known oil horizon by further drilling in the proven area, but there was a demand for all oil produced and a very considerable amount of imports was refined locally for tractor distillates. Montreal Alberta, No. 1, was deepened to 3,400 feet and was being tested for possibilities of production in the palaeozoic limestone. A test was drilled by Altoba north of the proven area, using a diamond drill, but was discontinued before reaching potential horizons. Another test in this general area was preparing to drill under the name of Sam Taylor (Battleview Oils). In the field once known as Ribstone, Dina Oil Company made some progress in rehabilitating the abandoned Meridian, No. 2, and near Dunn, London Ribstone

Oil Company was preparing to resume operations in its No. 2 well after being shut down since 1930.

At Vermilion, Tenwell, No. 1, was deepened to 2,087 feet without gaining any definite information.

Drilling operations were conducted at Waterways to prospect for salt. A salt bed 199 feet thick was proven, its top being at a depth of 699 feet. The first prospect hole was too small to use for production and a second hole was under way by the end of March.

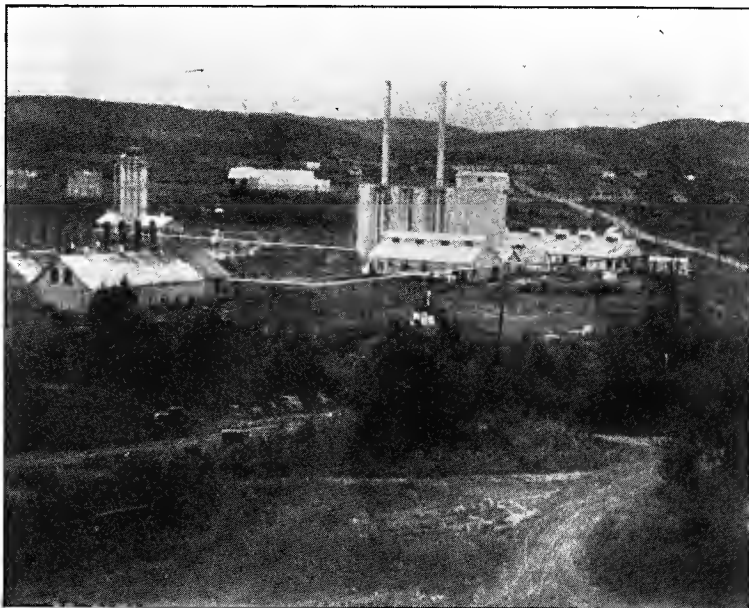
GAS FIELDS

Tests of gas wells in Turner Valley were made in June, 1936, the customary procedure being followed which includes blowing of wells for a period of one hour for removal of any liquid accumulated at the bottom, observation of closed pressure at the end of twenty-four hours and rate of flow at two-thirds closed pressure. Pressure ranged from 1,420 pounds in a newly completed well at the south end of the field to a minimum of 385 pounds in section 20, township 19, range 2, west 5th meridian. Gas withdrawals during the year totalled 87,000,000 Mcf. as compared with 90,250,000 Mcf. for the preceding twelve months, total withdrawals to date being 894,360,000 Mcf.

Repressuring of Bow Island Field.—During the fiscal year 1,483,258 Mcf. of gas from Turner Valley was pumped into the field, the pressure by March 31st being about 532 pounds. This interesting experiment has been in progress since 1930 and a total of 10,531,184 Mcf. has been injected since the operation started.

Foremost Field.—No gas was drawn during the year. The field remains as a stand-by, ready to meet emergencies.

Medicine Hat Field.—No report was received on closed pressure tests in 1936, but some operations were undertaken in the way of repairs to wells and pipe-



Another view of Royalite scrubbing plant

lines. A start was made at odorizing gas as an indication of leaks in residential and other connections and so many leaks were found in house piping that only intermittent odorizing could be carried on until repairs had been made. The discovery of these leaks proves the value of odorizing all gas used for domestic purposes. Demand for gas has been well within the capacity of the field and the supply continues as a valuable asset to the city.

Brooks Field.—Six wells, having low pressure and small capacity, supply the town.

Viking Field.—Cleaning out operations are carried on each summer and necessary repairs are made. The annual closed pressure test of the field showed the pressure decline to be quite moderate.

Kinsella Field.—Remains as a reserve, accessible when Viking field becomes depleted.

Fabyan Field.—Wells were not tested officially but a company report indicates a pressure of 550 pounds in the spring of 1937. Two wells supply the town of Wainwright.



Measuring flow of well with a pitot tube

BITUMINOUS SANDS

During the summer of 1936 a plant was erected near McMurray for separation of sand from the bitumen and a test run was made in the fall. Plans for 1937 call for installation of a plant for manufacture of gasoline, diesel and tractor fuels, road oils and asphalts. Increased mining activity in the country north of McMurray offers an opportunity for testing out commercial uses of the vast deposits in this area and it is hoped that fuels suitable for use in exploitation of the mineral resources may be developed.

OIL PRODUCTION FOR FISCAL YEAR 1936-37

	Barrels	Value Estimated
Turner Valley Limestone, naphtha	280,876	\$ 676,393
Turner Valley Limestone, crude	501,017	900,576
Turner Valley Limestone, natural gasoline ...	621,718	1,414,958
Turner Valley, shallow crude	11,909	25,040
Red Coulee-Border, light crude	16,386	19,004
Wainwright, heavy crude	15,155	14,876
Miscellaneous	600	480
TOTALS	1,447,661	\$3,051,327

Note that there was no sharp division between naphtha and crude from Turner Valley limestone and it has been necessary to make arbitrary assumptions. The price of crude varies with gravity and again these assumptions have been used.

The quantity "barrel" consists of 35 imperial gallons and is the same as the United States barrel of 42 U.S. gallons.

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Fiscal Years						
	Turner Valley Limestone	Shallow	Red Coulee	Wainwright	Miscellaneous	Total
1914-35	7,997,897	403,662	212,470	72,934	21,498	8,708,461
1935-36	1,196,493	17,220	20,051	13,958	1,874	1,249,596
1936-37	1,403,611	11,909	16,386	15,155	600	1,447,661
TOTALS	10,598,001	432,791	248,907	102,047	23,972	11,405,718

SUMMARY OF OIL PRODUCTION IN ALBERTA

By Calendar Years						
	Turner Valley Limestone	Shallow	Red Coulee	Wainwright	Miscellaneous	Total
1914-34	7,694,413	398,395	207,234	69,662	21,498	8,391,202
1935	1,208,321	18,691	20,536	14,638	1,564	1,263,750
1936	1,274,119	13,119	17,937	14,957	310	1,320,442
1937 (3 months)	421,148	2,586	3,200	2,790	600	430,324
TOTALS	10,598,001	432,791	248,907	102,047	23,972	11,405,718

OIL PRODUCING WELLS IN THE PROVINCE

As at March 31st, 1937

	Producing	Closed in	Total
Turner Valley, oil and gas	88	20	108
Turner Valley, light crude only	6	...	6
Red Coulee	7	1	8
Wainwright	7	2	9
Miscellaneous	1	1	2
TOTALS	109	24	133

GAS WELLS NOT INCLUDED WITH OIL WELLS

Medicine Hat-Redcliff	46
Bow Island	11
Foremost	6
Milk River Area	3
Viking	23
Kinsella	3
Fabyan	2
Brooks	6
TOTAL	100

Numerous wells which serve only a single consumer are not included.

COMPARATIVE STATEMENT OF FOOTAGE DRILLED IN WELLS

Fiscal Year	Turner Valley	Foothills West of Turner Valley	Rest of Province	Total
1930-31	112,043	14,373	88,544	214,960
1931-32	37,695	2,173	36,505	76,373
1932-33	13,812	813	21,495	36,120
1933-34	65,773	2,417	14,183	82,373
1934-35	70,555	4,850	15,163	90,568
1935-36	24,383	6,120	25,999	56,502
1936-37	70,275	8,682	38,048	117,005

GAS USED IN ALBERTA 1936-37
Quantities in Mcf. (Thousands of Cubic Feet)

From Foremost		Nil
From Turner Valley:		
Calgary-Lethbridge	6,595,667	
Refinery	995,824	
For storage and fuel, Bow Island repressuring	1,561,593	
Bow Island town	50,654	
Field use (mostly estimated)	3,103,495	
Brooks		12,307,233
Edmonton and towns		51,010
Wainwright, town	111,787	3,129,978
field use, estimated	18,000	
Medicine Hat		129,787
Redcliff		2,118,026
Exported to Montana (includes some gas for field use in Montana)		735,899
Red Coulee, field use in Alberta		222,617
Miscellaneous, field use		10,346
		22,600
TOTAL		18,727,496

ESTIMATE OF WITHDRAWALS AND WASTE OF GAS FROM TURNER VALLEY

	Mcf. Drawn	Mcf. Wasted
To end of March 1935	717,110,000	614,050,000
1935-36	90,250,000	78,020,000
1936-37	87,000,000	74,710,000
TOTALS	894,360,000	766,780,000

PEG MODEL OF TURNER VALLEY FIELD

A peg model of the Turner Valley field, photographs of which accompany this report, is maintained in the geological laboratory, located in the Calgary office of the Division in the New Telephone Building on Sixth Avenue in Calgary.

The base of the model is a map of the field on a scale of 10½ inches per mile with the pegs or rods which represent the wells accurately located.

In this laboratory formation samples and cores of wells being drilled are examined and by means of various painted colours the formations penetrated in the wells are placed to scale on the pegs or rods.

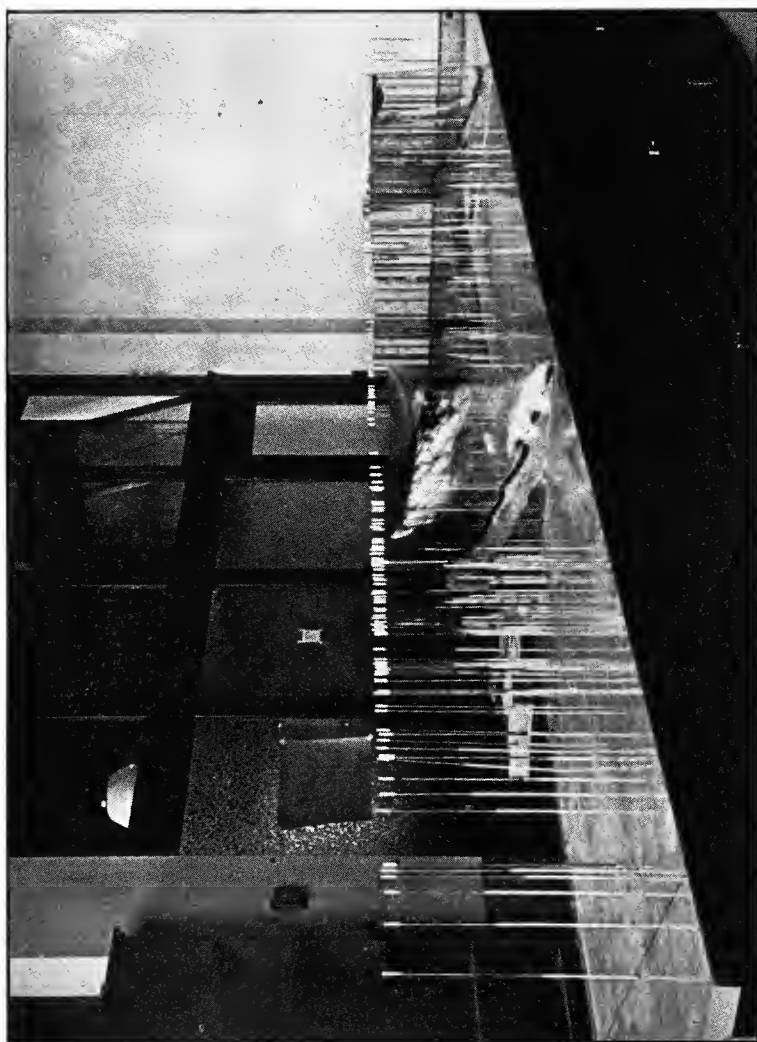
While the various colours do not register in the photographs, the elevation of each well is noticeable, being at the base of the white painted tip of the peg and the limestone contact at the base of the darker coloured paint is also recognizable. The altitude of this horizon is further shown by the small cord leading from well to well.

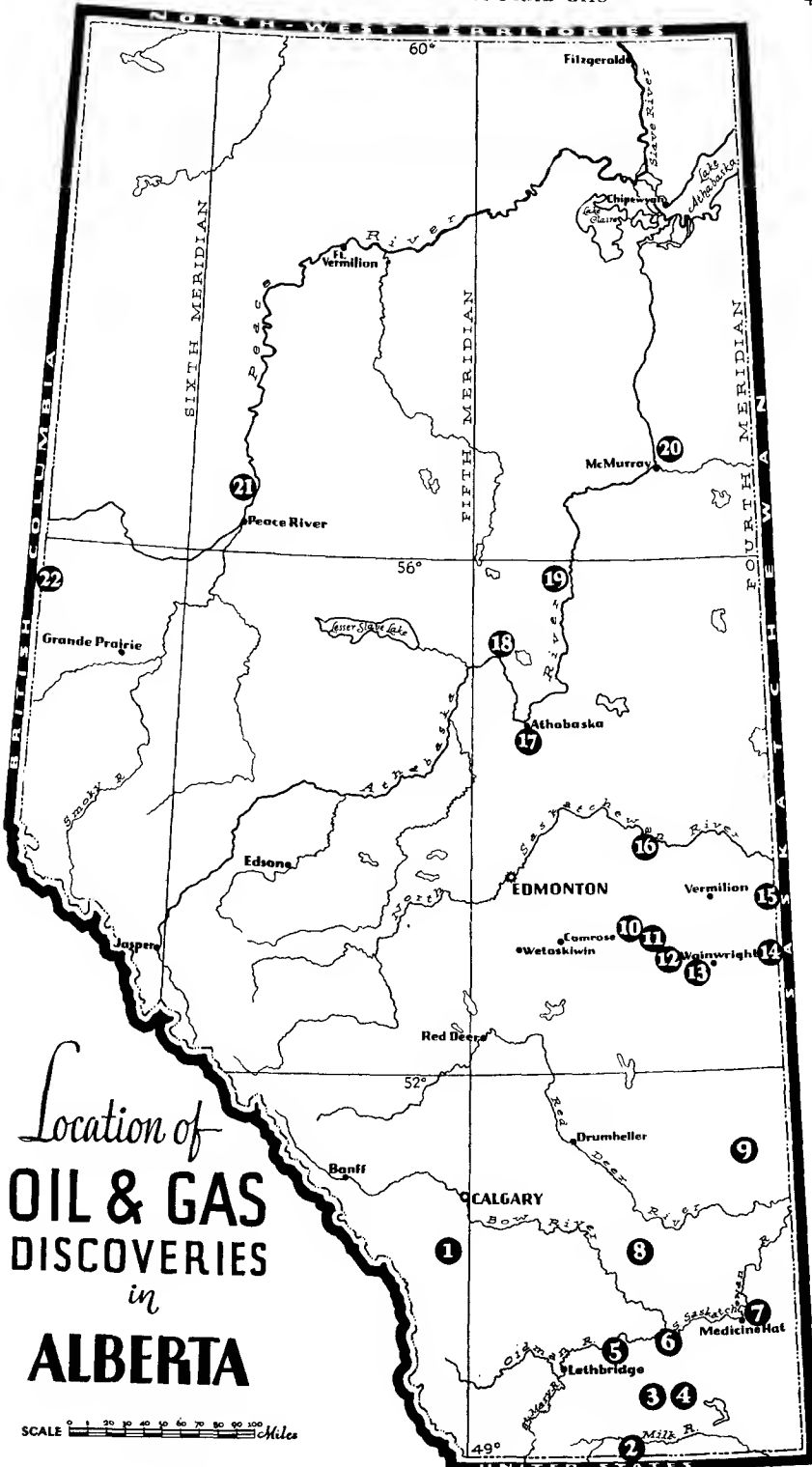
Two cross sections have been prepared and inserted in the model which illustrate the dips of the formations as found in the individual wells.

Peg model of Turner Valley field looking south-west. For description see page 42.



Peg model of Turner Valley field looking south-east. For description see page 42.





KEY TO MAP

1. Turner Valley. Producing oil and gas field.
2. Red Coulee. Producing oil field; light crude.
3. Skiff. Heavy crude oil. Not producing.
4. Foremost. Gas field-reserve.
5. Barnwell. Small gas field.
6. Bow Island. Gas field being repressured from Turner Valley.
7. Medicine Hat. Gas field supplies city.
8. Brooks. Small gas field supplies town.
9. Oyen. Showings of heavy oil. Not developed.
10. Viking. Gas field supplies Edmonton.
11. Kinsella. Proven gas field not yet in use.
12. Fabyan. Two wells supply Wainwright with gas.
13. Wainwright. Producing oil field. Heavy crude.
14. Dina. One producing oil well and others drilling.
15. Lloydminster. Gas produced on Saskatchewan side of boundary used in town.
16. Duvernay. Gas discovery may prove a field.
17. Athabaska. Heavy oil discovered but not developed.
18. Smith. Gas discovered but not developed.
19. Pelican. Gas discovered.
20. McMurray. Vast deposit of bituminous sands.
21. Peace River. Heavy oil, not developed. Also little gas.
22. Pouce Coupé. Gas discovered.

Forestry

REPORT OF THE DIRECTOR OF FORESTRY, T. F. BLEFGEN

The fiscal year 1936-37 was a very favourable one with reference to both timber operations and departmental revenue. While the local market did not absorb outstanding quantities of lumber, exports from the province to other parts of the dominion and the United States provided an increased outlet that is reflected in departmental returns. Tie replacement on railways continues to account for a large portion of the timber business, and it is probable that if, in Alberta, the accessible stands of mature and potential tie timber can be protected, the province will continue to hold its position with respect to this timber product.

The important feature that has been lacking during the past few years, and which is still largely absent, is the local market for lumber. A resumption of building construction is required to provide a good provincial market and when such construction work is resumed on a scale large enough to meet requirements that are only too apparent, then the lumber industry will again operate on a scale which cannot but react favourably in many directions.

For a great many years the settlement of land by homesteading has carried with it the right to secure a stipulated amount of crown timber free for use in developing the homestead. Beyond the amount thus obtainable, the settler paid for his lumber and timber as any other individual. In recent years, however, the difficulties of individual settlers, together with the presence of the crown timber resource, has resulted in representations envisaging a broader consideration for the settler. The result is that a large quantity of cheap lumber comes on the market by reason of the permission given to trade a portion of the free allowance for milling services. As the amount of lumber so released on the market is considerable, this movement undoubtedly has a noticeable effect on what may justly be termed the normal local or provincial demand for manufactured forest products.

The free timber allowance to homesteaders is designed to provide an attraction to land settlement but it must be recognized that the allowance may only be enjoyed where the timber is present within a distance that permits the homesteader to secure it economically, and it will be apparent at once that the privilege is of no practical benefit where such conditions do not exist. The value of the free timber allowance to satisfactory land settlement is questionable for in effect it puts something of a premium on the settlement of marginal and sub-marginal lands, usually unfit for agriculture and, in many cases, abandoned after a trial during which the land has been denuded of its most valuable crop, the timber, and often the adjacent lands denuded of forest cover through uncontrolled fires. In addition, there is of course the loss of labour involved in the effort to bring such land under agricultural development.

The free allowance under existing circumstances is, in many cases, dissipated to the extent of half through the payment for manufacture by way of toil. As a result, the allowance once believed to be an important concession in encouraging land settlement is only partly used in the improvement of the property. As an aid to good settlement, the free allowance is of doubtful value, and it is distinctly against forest management or forest protection.

The cut of railway ties continues to provide a large portion of the revenue derived from the provincial timber resource. If this business holds and any

considerable building construction activity commences, the drain on accessible merchantable timber will be more apparent and the necessity of correlating settlement and forest policy will be emphasized. Likewise, the importance of sound forest management and of adequate forest protection will be generally apparent. It is probable that development will force a consideration of the problems involved and action on them. It is, however, regrettable that suitable preparation cannot be made in advance.

The past two years have furnished extreme conditions with respect to forest protection. Whereas in the fire season of 1935 a year of unprecedented low fires was experienced, the 1936 season was at the other extreme for a large portion of the foothill and mountain section. The year of heavy fire loss following immediately on the one of lowest recorded loss provides an immediate and startling comparison. The proof is found in these two years of the contention that has been made repeatedly, namely, that the regular summer staff of the Forest Service is competent to deal with fires up to a certain intensity of number but as the number of fires extend beyond this, the staff is found to be more and more inadequate to meet field requirements. A similar situation exists with respect to fire-fighting equipment. The remedy will be found in preventive measures, and it may be remarked here that remedy by prevention is logical and sound, and its application in the interests of the province should not be delayed.

The cumulative effect of forest denudation by annual fires and cutting is noticeable in several directions now and if forest resources continue to be dissipated as in the past, it can only be a short time until a serious situation confronts forest industry, and the scarcity of accessible merchantable timber will be reflected in prices to the consumer. This, however, is not the whole implication of forest depletion. The known effect of the loss of forest cover on watershed protection, stream flow regulation, soil erosion, game, fish and scenic attraction all weight the scale heavily in favour of a sound policy of forest protection and management.

The work of the field staff on forest administration has been of a high order and the amount of work dealt with shows an increase over the preceding year. In addition and particularly for rangers and assistants, a more definite responsibility was placed, and a very considerable extra amount of work undertaken from the time the Game Branch was transferred from the Department of Agriculture to the Department of Lands and Mines.

In many respects the field staff of the Forest Service is peculiarly fitted to undertake game administrative work. Forest cover is a necessity for most forms of wild life so that the effort for forest protection naturally favours most forms of game. In addition, there is the fact that rangers and assistants, by reason of the requirements of their positions and their training in conservation, are eminently suited for field administration of game. There is also the point that the activities of hunters and trappers are directly related to forest protection so that all in all the change whereby the field administration of the Game Act within forested territory came under forest officers was a happy one and promised well for the future.

The forest nursery at Oliver was continued on the same scale as was reported for last year. A fairly early spring with warm dry weather created a difficult situation for lifting and shipping tree stock and this was further complicated by the limitations on packing facilities and the main labour employed which is drawn from the inmates of the Oliver institution. A considerable improvement in the entire operation is possible with the expenditure of a small amount of funds for packing shed and labour. A further improvement that might be effected in the

event of the nursery output becoming sufficiently increased is that of a definite undertaking to supply tree stock to a defined portion of the province, leaving the balance to the dominion nursery at Indian Head. Annual production and shipping costs would indicate the territory to be served by each nursery.

FOREST PROTECTION

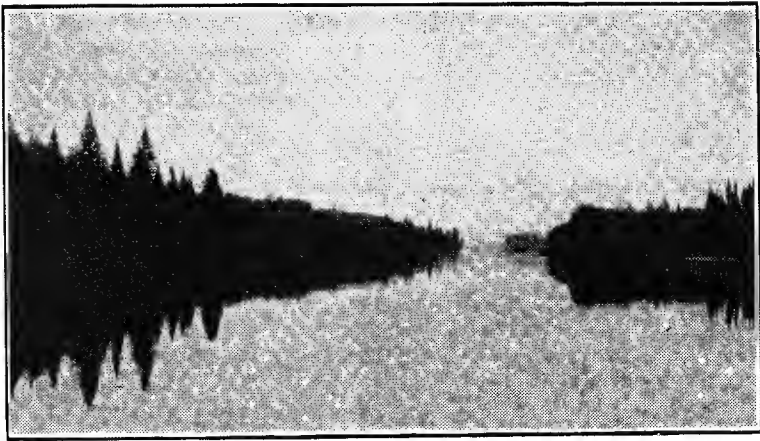
The term "forest protection" usually brings to mind the protection of forests from fire but in reality the term embraces all agencies that in one way or another cause destruction of forest cover. Fire has been the most destructive agent of forests in the province but it is probable that other forms of destruction will appear unless control measures being sought in other parts of Canada are put into effect. In particular, it is to be hoped that the destruction of pine and spruce by agencies other than fire and wind will be controlled in other parts of the Dominion before such destruction extends into Alberta.

The principal forest destruction in this province, arising as it does from fire, and the fires originating largely as a result of various forms of human activity, presents an answer to the problem which is apparent. There is evident an appalling carelessness in the use of fire and a callousness or apathy towards losses thus caused. Every spring ground fires are present which have originated as a result of various forms of activity and which, if the season is a dry one, will provide fires which must be fought and controlled.

Settlers in the spring of every year have to burn bush and when this is done without adequate precautions and during hot, dry weather, a number of fires always run out of control. Add to this the careless forest traveller with the unextinguished camp fire, and it will be realized that every year is potentially a bad fire year.

Experience over many years has shown that as long as a minimum field staff is employed, and largely employed only seasonally and for an absolute minimum length of season, in a region such as Alberta embraces, heavy fire losses are bound to occur. A realization of the drought conditions which are faced in this province all too regularly provides an indication of conditions which seriously endanger the forest resource. In the protection of this resource the province is dependent to a large degree on weather conditions. These conditions, if favourable, result in the extinguishing of a large percentage of incipient fires but, if unfavourable, field staff coverage is insufficient to meet the emergency. The stress should be on prevention to a much greater extent than is now the case.

Fire Season.—The winter preceding the 1936 fire season produced in the mountain and foothill region a fairly heavy snowfall during the early winter and long periods of low temperatures. The depth of frost in the ground was probably greater than usual and, with the early spring break-up which was accompanied by fairly high temperatures and no precipitation, the surface run-off was greater than usual. The late spring and early summer produced very little precipitation and from mid-June to mid-August there was almost an entire absence of rain. This period was one of the most hazardous for the forests of the province that has been experienced. High temperatures, strong winds sometimes approaching gale proportions and low humidity, combined with the low moisture content of soil and forest litter, produced a condition that was most favourable for the easy ignition and rapid spread of fire and it was during this period that difficulties of the gravest nature were encountered. During the latter part of August and all of September the danger was eased by intermittent showers. The precipitation was not sufficient, however, to definitely conclude the fire season and in the fall another dangerous period developed which continued without relief until along in December.



Timber stands on the Clearwater River

During the season conditions over a large portion of the Northern Alberta Forest District were reasonably satisfactory but those divisions such as Edmonton, Edson and Grande Prairie, which are subject to the influence of mountain and foothill weather, experienced hazardous periods only slightly less intensive than those which prevailed throughout the Rocky Mountains Forest Reserve. A noticeable shortage of rain was evident over the McMurray division which embraces the north-eastern area of the province. In this division a hazardous period arose in the late summer and fall.

Fire Prevention.—Measures known to meet the requirements of fire prevention were employed to the extent possible under existing limitations of permanent and seasonal staff, and the commencement of the employment period for seasonal staff. A very real danger has existed for several years in delaying the opening date of employment of the seasonal ranger staff. Such delay largely eliminates any opportunity for preventive work and results in active fire-fighting operations, often immediately following the placing of the men in their districts. The slight saving which may be effected in salaries is usually more than offset by

the expenditure of funds on fighting fires which have developed prior to the employment of seasonal staff.

Early in the season it was apparent in the regions affected by drought that an exceptional effort would be required if the situation were to be kept in hand. Through travel permit, registration of travellers and patrol close contact was effected with all persons entering or travelling through forested territory and the public responded by giving splendid assistance. Despite every precaution fires occurred but were either controlled or extinguished with the exception of two unfortunate instances which will be touched on later in this Report. It became necessary to close the Rocky Mountains Forest Reserve to the general public from the southern boundary north to the Brazeau River for as the season passed the field staff gradually were engaged to the fullest extent in combating fires so that it became necessary in the interest of public safety, and in order to prevent so far as possible further fires arising as a result of human activities, to deny entry to the hazardous region.

BURNING PERMITS ISSUED, PROVINCE OF ALBERTA, 1936

By the Forest Service:			
Cypress Hills			
Crowsnest-Bow River		14	
Clearwater		412	
Brazeau-Athabaska		10	
By the staff of the Forest Reserves			436
Edmonton		56	
Edson		118	
Athabaska		111	
Bonnyville			
McMurray		19	
Slave Lake		361	
Grande Prairie		170	
Peace River		148	
By the staff of the Northern Alberta Forest District			983
Sub-total			1,419
			1,419
By Outside Agencies:			
Honorary Fire Guardians:			
Edmonton		63	
Edson		138	
Athabaska		84	
Bonnyville		42	
Slave Lake		139	
Grande Prairie		29	
Peace River		117	
			612
Fire Guardians in Municipal Districts		183	
Royal Canadian Mounted Police		266	
Sub-total			1,061
			1,061
TOTAL			2,480

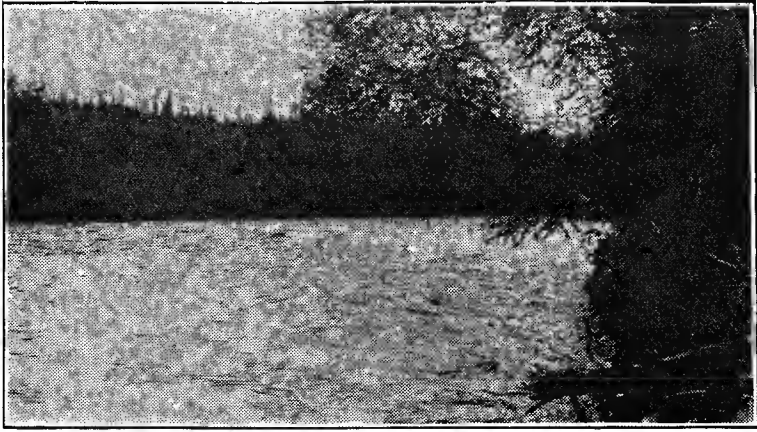
PROSECUTIONS AND CONVICTIONS, PRAIRIE FIRES ACT, 1936

	Instituted by Forest Service	Instituted by other Agencies	Totals
Number of prosecutions	10	10	10
Number of convictions	7	7	7

Fire Detection.—While fire prevention efforts seek to eliminate fire occurrence, it is realized that our present preventive measures fall far short of meeting the situation and, aside from fires caused by man, there are fires originating from lightning and the somewhat remote possibility of fire from spontaneous combustion. Fires, whether they occur in the forest or a city, must be reported and fought while still small if they are to be controlled without heavy expenditure and loss. The need for a means of detection that will provide for early reports on fires is only too apparent, and an enlargement of the detection service now in operation throughout most of the Rocky Mountain and Slave Lake regions has been emphasized on other occasions. Some of the most important forest areas of this province are provided with a most elementary form of forest protection, a

situation which neither does justice to the importance of the resource, nor to operators; nor does it encourage the development of the forest industry in potentially valuable timber areas.

Fire Suppression.—A comparison of the fire season covered by this Report with that immediately preceding serves to emphasize the remarks made in the Report of 1935. The 1936 season was abnormal to almost the same extent that the 1935 season was subnormal with the exception that 1935 conditions were general over the province whereas in 1936 it was very fortunate that the extremely dangerous conditions were present over but a portion of the forested territory.



Timber stands on the Clearwater River

The danger area coincided largely with the most highly organized and best manned forested area under protection in the province. Due to this it was possible to keep the situation in hand so long as fires of Alberta origin were the only fires to be coped with. Keeping this fact in mind, it is not difficult to visualize what might easily occur should similar conditions prevail over territory that is poorly organized for prevention and suppression purposes. Evidence of what actually takes place under such circumstances is to be found in the annual reports covering forest protection over a considerable period of years.

Fires which occur in British Columbia in the vicinity of the eastern boundary of that province always carry a threat for Alberta. The fiercest burning and the most favourable conditions for fast spreading arise during the hot, dry periods which are accompanied by strong west or south-west winds. A barrier to British Columbia fires entering Alberta exists along that section of the inter-provincial boundary which is formed by the summit of the Rocky Mountains. This barrier is usually effective except where passes are found or when fires have reached large proportions and, in addition to the normal wind, create terrific upward air currents. When this occurs the main range in south-western Alberta no longer stops the fires and, if the condition is severe, the fires will be spread over a large area when carried into Alberta.

While conditions were serious in Alberta and fires of Alberta origin had already been acted upon, two fires in British Columbia which carried a threat to Alberta came under observation. These fires were burning in the Flat Head and Elk River valleys, immediately west of and adjacent to the main range of the Rocky Mountains, the summit of which forms the inter-provincial boundary. The British Columbia authorities knew of the existence of these fires but were heavily engaged in other parts of the province. Both fires spread uncontrolled towards Alberta and it was evident that if the then prevailing weather continued, it would be necessary to defend all mountain passes leading from the fire areas into Alberta that provided sufficient inflammable material to carry fire. Arrangements were made to this end and fire-fighting crews stationed in the passes in the path of the fires.

It is possible that a more successful operation would have been an attack on the fires while still well in British Columbia. It was hoped, however, that those directly concerned would deal with the situation while it was still possible to do so and thus eliminate the possibility of the fires spreading to Alberta. This was not done and, on one of the worst days experienced in south-western Alberta during the summer, both fires were blown over the main mountain range on a wide front. The crews maintained in the passes instead of being an asset became almost a liability for the fires passed over them and trapped them.

A defence along the inter-provincial boundary was impossible under conditions that obtained on this particular day when the fires entered Alberta. The result of the spread of the Elk River fire may be understood when it is stated that almost immediately it entered Alberta in the Highwood Valley, there existed a fire on a front of roughly five miles. A very similar occurrence may be recorded in connection with the fire entering the Castle River drainage from the Flathead. Adequate preparations had been made to meet both these fires if ordinary fire weather had obtained but the preparations were completely nullified by unpredictable conditions which proved to be greatly abnormal. Had it been possible to have predicted the weather conditions, it must be admitted that a successful defence could not have been organized and, in any event, such preparation as would have been necessary would have appeared entirely unjustified and, no doubt, would have been severely criticized.

These fires were fought continuously from the time they entered Alberta on July 23rd, 1936. In view of the large fire front established immediately they entered Alberta and of the continuing unfavourable weather, there was small hope of success. That hope, however, formed the basis of the effort made which, in effect, was to have sufficient man power, equipment and supplies on hand and fire lines established so that immediate advantage could be taken of any favourable weather change to control and extinguish the fires. As both conflagrations were in good, accessible timber, the effort and expense was justified and, in addition, there was the necessity of protecting forest cover on important watersheds, cover on favourite game ranges and preventing the fires from spreading east on to livestock ranges.

These fires which may have appeared comparatively unimportant while burning in British Columbia became an immediate menace in various directions just as soon as they spread into Alberta. In addition to the original entry into Alberta, they continued to carry another menace. In British Columbia they spread north along the west side of the main range, making it dangerous to place crews on the north flank of the fires in Alberta for there was the continual threat of fresh jumps over the main range and thus the trapping of crews on the north flank of the Alberta operations. Such jumps actually occurred, particularly from the southern fire which was reported to have jumped the main range five times as it worked north. Another danger appeared as the Elk Valley fire worked north towards the Elk Pass. This pass leads from the Elk Valley to the Kananaskis Valley and it became apparent that a defence in it would be necessary unless a rain or snowstorm occurred. In order to stop this part of the fire from entering the Kananaskis Valley, a crew of some seventy-five men were employed and a successful operation concluded, but only after a very strenuous effort had been made which involved moving men, equipment and supplies into the Kananaskis Lakes and Pass district, the last stages of transportation being via pack horse.

These fires account for the major fire-fighting cost and loss of timber during the season. They burned over 102,422 acres in Alberta, causing an estimated loss of \$1,274,367.18, based on timber dues, and cost \$68,995.45 in fire-fighting operations. In addition, their presence made fire detection so difficult that other fires in the same general districts broke out as a result of lightning strikes and were only detected after they had gained considerable headway. This is directly attributable to poor visibility caused by the smoke of the fires in the Castle River and Highwood River valleys. Indirectly then, they were responsible for a much larger loss of timber and cost of fire-fighting than is represented by the above figures. The Flat Creek fire and the Coal Creek fire, both of which started from lightning and to the east of the Highwood fire, burned over 17,045 acres, causing a loss of timber of \$86,879.90 and cost of \$13,834.46 for fire-fighting.

The major losses and fire-fighting costs were incurred on the Crownsnest-Bow River Forest and the Clearwater Forest. On the former, the situation originated with and was aggravated by the entry of the British Columbia fires and, on the latter, a Class D fire resulted from a lightning strike in inaccessible country and was difficult to control. Fire-fighting costs were \$98,240.46 and \$15,373.54 respectively, a total of \$113,614.00 for the two forests. The relationship of the situation on these two forests, as compared to the entire provincial situation, will be realized when fire-fighting costs are compared; the Crownsnest-Bow River and Clearwater Forests \$113,614.00, the entire province \$122,542.29.

The loss and expenses incurred as a result of the entry of British Columbia fires warrants most serious consideration. Such fires may originate in districts of British Columbia of relative unimportance from a conservation or forestry standpoint, but on entering Alberta become a serious threat to more than just the forest cover. That this menace is very real when hazardous fire conditions exist in Alberta at the time when such fires occur in south-eastern British Columbia in the vicinity of the inter-provincial boundary is definitely indicated by the number of occasions on which these entries have occurred.

Causes.—The Service acted on 248 fires during the season, of which 149 were extinguished while in the small class, that is, classes A and B, all being under ten acres. Of the remainder, 71 exceeded ten acres but were under 500 acres, and 28 were in Class D, over 500 acres.

It is significant that campers were responsible for the largest number, 95 being charged to this source. The heaviest loss came from those few fires termed "unclassified", which group includes the fires from British Columbia and this

group is followed by the "lightning class". Of course neither of the latter groups are in the class that are subject to any form of prevention control. Of significance also is the fall in the relative number of settlers' fires. Conditions for settlers' clearing fires were unfavourable and the fact is reflected in the returns covering the Northern Alberta Forest District.

COMPARISON OF FIRE CAUSES BY PERCENTAGE

Causes	1931	1932	1933	1934	1935	1936
Campers	23.7	52.8	38.9	35.4	42.3	38.3
Smokers	3.2	5.3	13.5	11.7	9.3	9.7
Settlers	21.9	17.1	17.4	17.9	8.2	11.7
Railways	6.6	4.5	2.8	5.0	10.3	4.0
Lightning .....	.6	2.6	5.2	7.5	1.0	14.1
Industrial operations	1.9	1.1	1.7	4.2	1.0	3.2
Incendiary	15.1	8.2	11.8	11.2	22.7	10.1
Public works	1.4	.5	1.4	1.3	1.0	.4
Unclassified	1.5	1.6	.....	2.5	2.1	2.0
Unknown	24.1	6.3	7.3	3.3	2.1	6.5

RAILWAY FIRE LOSSES, CALENDAR YEAR 1936

This statement deals only with fires burning on forested areas under the supervision of the Alberta Forest Service and which started within 300 feet of the centre line of the railway right of way.

Causes and numbers of fires:

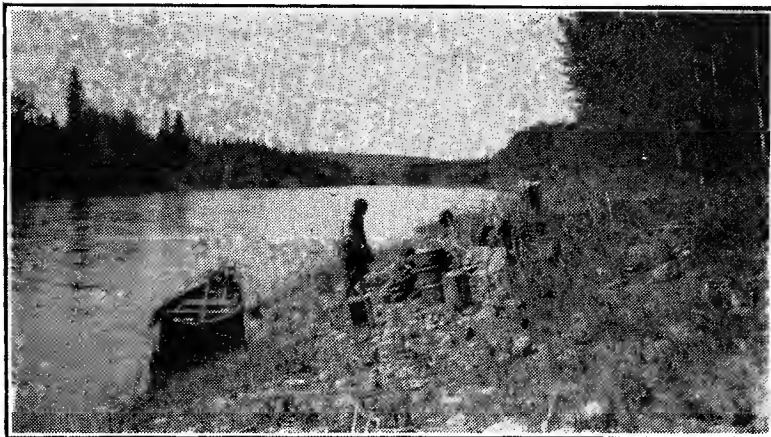
Railway causes—Locomotives	6	
Employees	3	
Sub-Total	9	
Other causes—Campers and travellers	7	9
Settlers	2	
Unknown .....	.....
Sub-Total	9	9
TOTAL		18

Number of acres burned:

Slashing or old burn .....	.....
Timber land .....	.....
Young growth	85
Not forested	239
TOTAL	324

Loss:

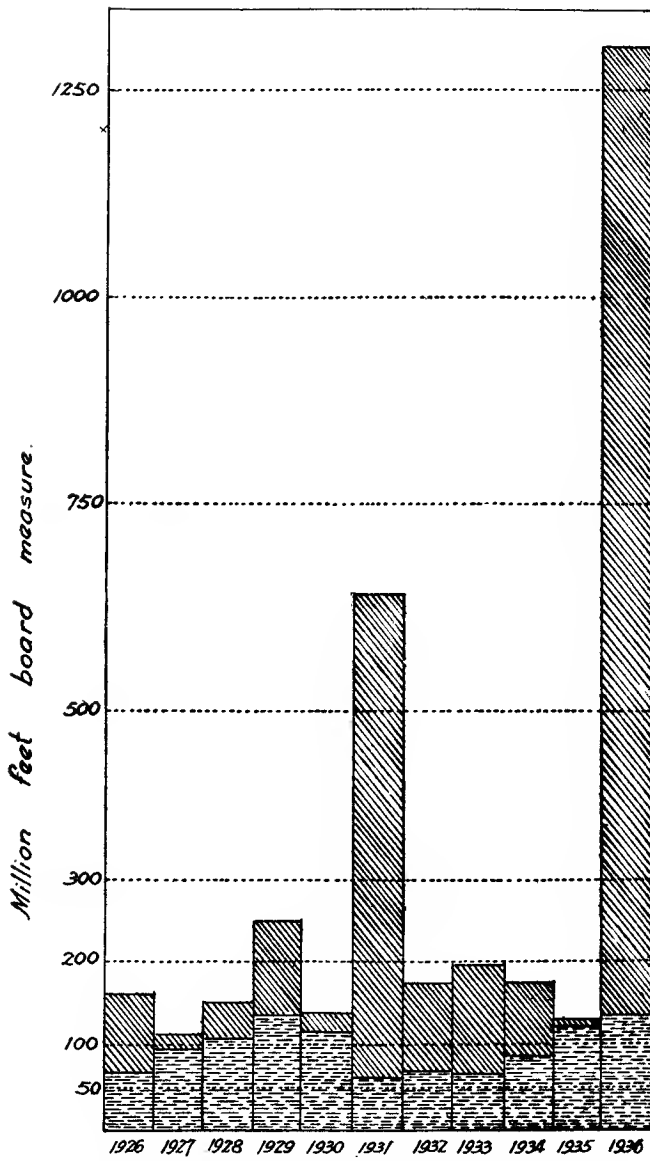
Timber .....	.....
Young growth	\$426.00
Forest products .....	.....
Other property .....	.....
TOTAL	\$426.00



Wabiskaw River looking north from below Bad Rapids

ANNUAL STATEMENT OF FIRES BY CAUSES, MONTHLY DISTRIBUTION, ETC., WITHIN AND OUTSIDE FOREST RESERVES, ALBERTA—CALENDAR YEAR, 1936

Cause	Number					P.C.	Damage	Area, Acres	Monthly Distribution												Prosecutions		Fires Inside Provincial Forests		Fires Outside Provincial Forests			
	Tot.								January	February	March	April	May	June	July	August	September	October	November	December	Convictions	No.	Area Acres	No.	Area Acres			
	A	B	C	D																								
Camp-fires	62	13	14	6	95	38.31	\$ 72,857.39	28,018					13	22	18	22	9	10	1				4	11,320	91	16,698		
Smokers	5	3	10	1	24	9.68	4,414.15	5,475				1	4	2	8	1	1	6					6	474	18	5,001		
Settlers	1	6	16	6	29	11.69	2,228.87	8,463					10	3	1	1		13	1					29	8,463	29	8,463	
Railways	6	1	3		10	4.02	8.75	111				1	2	2	5										9	111	9	111
Lightning	12	9	7	7	35	14.12	173,500.77	39,335					6	4	11	13		1					29	38,124	6	1,211	6	1,211
Industrial																												
Operations	4	2	2		8	3.23	7,726.31	965					1	1	2			4	1				6	485	2	480	2	480
Incendiary	3	5	15	2	25	10.08	1,812.36	5,452					15	6	1	1		3							25	5,452	25	5,452
Public Works	1				1	.40																				1		1
Unclassified	2			3	5	2.02	1,274,367.18	106,422						1	2	1		1					3	106,422	2		2	
Unknown	7	2	4	3	16	6.45	13,014.52	10,213					5	2	4			4	1				3	8,640	13	1,573	13	1,573
TOTALS	103	46	71	28	248	100.00	\$1,549,930.30	204,454				2	56	42	52	39	10	42	5				52	165,465	196	38,989	196	38,989
Per cent.	41.6	18.5	28.6	11.3	100							8	22.6	17.0	21.0	15.7	4.0	16.9	2.0				21.0	80.9	79.0	19.1	19.1	



GRAPH OF TIMBER DEPLETION 1926 TO 1936.



Timber destroyed
by Fire



Timber utilized

During this period of 11 years, the total depletion was 3,447,208,170 Feet board measure of which 31.17% was utilized and 68.83% destroyed by Fire.

FIRE CAUSES	NUMBER OF FIRES					LANDS AFFECTED								LOSS										SUPPRESSION COSTS			Burning Permits Issued
						Ownership		AREA Total, Acres	CONDITION				TIMBER (MERCHANTABLE AND CUT-OVER)					Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	Ranger Service	Other Expenditure	Total			
	Public, Acres	Private, Acres	Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	SALVABLE			UNSAVABLE																	
							Saw-timber, M.ft.B.M.†		Other, Cords	Depreciation	Saw-timber, M.ft.B.M.†	Other, Cords	Loss														
A	B	C	D	Total																							
FIRES WITHIN FOREST RESERVES																											
Campers	3				3																						
Smokers	3	1			4	6		6			5	1					60	\$ 45.00	\$ 45.00	\$.50		\$ 45.50	\$ 3.75		\$ 3.75		
Lightning	1				1																		40.89	\$ 27.75	68.64		
Industrial Operations	1				1																		13.16		13.16		
Unclassified	1	1			2	½		½		½													9.01		9.01		
Unknown	1				1																						
TOTALS	10	2			12	6½		6½		½	5	1					60	\$ 45.00	\$ 45.00	\$.50		\$ 45.50	\$ 66.81	\$ 27.75	\$ 94.56		
FIRES OUTSIDE FOREST RESERVES																											
Campers	28	6	3	1	38	3,393		3,393	965 ½	115	579 ½	1,733				1,513	4,732	\$3,467.00	\$3,467.00	\$ 723.75		\$4,190.75	\$ 204.26	\$ 306.75	\$ 511.01		
Smokers	2	2	1		5	40		40			3	37					225	110.00	110.00	7.50		7.50	15.15	5.00	20.15		
Settlers	3		4	1	8	700	290	990	100	35		855	160	375			225	110.00	110.00			110.00	68.99	613.21	682.20		
Railways	5	4		1	10	542 ½		542 ½	20	33		489 ½				250	187.50	187.50				187.50	61.23	114.68	175.91		
Incendiary	1	16	4	1	22	1,347 ¼		1,347 ¼	154	15	666	512 ¼		820	\$210.00		164	43.00	253.00	436.25	\$ 535.00	1,224.25	72.73	61.65	134.38		
Public Works		1			1	½		½			½									2.50		2.50	31.00	4.25	35.25		
Unknown	1				1																						
TOTALS	40	29	12	4	85	6,023 ¼	290	6,313 ¼	1,239 ½	198	1,249	3,626 ¾	160	1,195	\$210.00	1,513	5,371	\$3,807.50	\$4,017.50	\$1,170.00	\$ 535.00	\$5,722.50	\$ 453.36	\$1,105.54	\$1,558.90		
FIRES WITHIN AND WITHOUT FOREST RESERVES																											
Industrial Operations	1				1																						
Campers	31	6	3	1	41	3,393		3,393	965 ½	115	579 ½	1,733				1,513	4,732	\$3,467.00	\$3,467.00	\$ 723.75		\$4,190.75	\$ 208.01	\$ 306.75	\$ 514.76		
Smokers	5	3	1		9	46		46			8	38					60	45.00	45.00	8.00		53.00	56.04	32.75	88.79		
Settlers	3		4	1	8	700	290	990	100	35		855	160	375			225	110.00	110.00			110.00	68.99	613.21	682.20		
Railways	5	4		1	10	542 ½		542 ½	20	33		489 ½				250	187.50	187.50				187.50	61.23	114.68	175.91		
Lightning	1				1																						
Incendiary	1	16	4	1	22	1,347 ¼		1,347 ¼	154	15	666	512 ¼		820	\$210.00		164	43.00	253.00	436.25	\$ 535.00	1,224.25	72.73	61.65	134.38		
Public Works		1			1	½		½			½									2.50		2.50	31.00	4.25	35.25		
Unclassified	1	1			2	½		½			½												9.01		9.01		
Unknown	2				2																						
TOTALS	50	31	12	4	97	6,029 ¾	290	6,319 ¾	1,239 ½	198 ½	1,254	3,627 ¼	160	1,195	\$210.00	1,513	5,431	\$3,852.50	\$4,062.50	\$1,170.50	\$ 535.00	\$5,768.00	\$ 520.17	\$1,133.29	\$1,653.46		
SUMMARY BY DIVISIONS																											
Cypress Hills																											
Crowsnest	7	1			8	6		6			5	1					60	\$ 45.00	\$ 45.00			\$ 45.00	\$ 70.55	\$ 30.75	\$ 101.30		
P. & R. River	1	1			2	½		½		½													3.46		3.46	1	
Clearwater	1			1	2	685	170	855	85			770	160				225	110.00	110.00	\$.50		110.50	50.00	598.57	648.57	467	
B. & U.	2				2																		5.55		5.55	9	
At. & S.	1	1			2	½		½				½								2.50		2.50	31.00	4.25	35.25	7	
N. D.*	38	28	12	3	81	5,337 ¾	120	5,457 ¾	1,154 ½	198	1,248 ½	2,856 ¼		1,195	\$210.00	1,513	5,146	3,697.50	3,907.50	1,167.50	\$ 535.00	5,610.00	359.61	499.72	859.33	939	
TOTALS	50	31	12	4	97	6,029 ¾	290	6,319 ¾	1,239 ½	198 ½	1,254	3,627 ¼	160	1,195	\$210.00	1,513	5,431	\$3,852.50	\$4,062.50	\$1,170.50	\$ 535.00	\$5,768.00	\$ 520.17	\$1,133.29	\$1,653.46	1,423	

†M.ft.B.M.—Thousand feet, board measure.

*N.A.F.D.—Northern Alberta Forest District.

FIRE CAUSES	NUMBER OF FIRES					LANDS AFFECTED								LOSS										SUPPRESSION COSTS			Burning Permits Issued
						Ownership		AREA	CONDITION				TIMBER (MERCHANTABLE AND CUT-OVER)						Loss of Timber	Loss of Young Growth	Loss of Other Property	Total Loss	Ranger Service	Other Expenditure	Total		
	Public, Acres	Private, Acres	Merchantable Timber, Acres	Cut-over Timber, Acres	Young Growth, Acres	Not Forested, Acres	SALVABLE			UNSALVABLE																	
							A	B	C	D	Total	Saw-timber, M.ft.B.M.	Other, Cords	Depreciation	Saw-timber, M.ft.B.M.	Other, Cords	Loss										
FIRES WITHIN FOREST RESERVES																											
Campers	3			1	4	11,320		11,320	7,832		640	2,848				5,720	92,374	\$ 39,610.25	\$ 39,610.25	\$ 1,620.00	\$ 100.00	\$ 41,330.25	\$ 570.99	\$ 5,771.64	\$ 6,342.63		
Smokers	4	1	1		6	474		474			275	199								1,030.50		1,030.50	57.00	284.33	341.33		
Railways	1				1																						
Lightning	11	7	5	6	29	38,117	7	38,124	26,523	190	6,961	4,450	570			48,216	280,165	157,310.39	157,310.39	15,277.25		172,587.64	2,117.34	34,282.01	36,399.35		
Industrial Operations	3	2	1		6	485		485	2	5	478		3	25		34	36	95.06	95.06	2,391.25	3,500.00	5,986.31	85.02		85.02		
Unclassified	1			2	3	79,375	27,047	106,422	65,624		27,198	13,600	7,000		\$ 7,000.00	830,789	374,735	1,210,989.93	1,217,989.93	56,377.25		1,274,367.18	2,044.04	61,106.62	63,150.66		
Unknown	1			2	3	8,640		8,640	2,079		135	6,426				433	17,284	8,802.82	8,802.82	168.75		8,971.57	324.02	2,251.47	2,575.49		
TOTALS	24	10	7	11	52	138,411	27,054	165,465	102,060	195	35,687	27,523	7,573	25	\$ 7,000.00	885,192	764,594	\$1,416,808.45	\$1,423,808.45	\$ 76,865.00	\$3,500.00	\$1,504,273.45	\$ 5,198.41	\$103,696.07	\$108,894.48		
FIRES OUTSIDE FOREST RESERVES																											
Campers	59	13	14	5	91	16,347	351	16,698	888	13	12,358	3,439	708	2,520	\$ 1,651.75	565	984	\$ 1,099.51	\$ 2,751.26	\$ 28,775.88		\$ 31,527.14	\$ 571.09	\$ 2,115.15	\$ 2,686.24		
Smokers	1	7	9	1	18	4,589	412	5,001	19	3	1,249	3,730	12	3		39	38	55.50	55.50	3,218.15	\$ 110.00	\$ 3,383.65	170.52	606.59	777.21		
Settlers	1	6	16	6	29	3,689	4,774	8,463	252	396	952	6,863	24	38	10.75	5	3,455	884.37	895.12	1,323.75	10.00	2,228.87	281.21	512.42	793.63		
Railways	5	1	3		9	40	71	111				111									8.00		8.75	12.10	3.00	15.10	
Lightning	1	2	2	1	6	931	280	1,211	230	70	508	403				30	860	263.75	263.75	649.38		913.13	94.61	223.87	318.48		
Industrial Operations	1				2	320	160	480	320	160			1,600					263.75			1,740.00	1,740.00	141.29	1,094.26	1,235.55		
Incendiary	3	5	15	2	25	4,394	1,058	5,452	408	296	410	4,338		16,355	266.25	8	680	261.74	527.99	1,284.37		1,812.36	174.61	417.01	591.62		
Public Works	1				1																						
Unclassified	1			1	2																						
Unknown	6	2	4	1	13	1,528	45	1,573	708	35	703	127	30	4,200	1,080.00	12		13.20	1,093.20	2,949.75		4,042.95	128.19	1,227.64	1,355.83		
TOTALS	79	35	64	17	196	31,838	7,151	38,989	2,825	973	16,180	19,011	2,374	23,116	\$ 3,008.75	659	6,017	\$ 2,578.82	\$ 5,587.57	\$ 38,201.28	\$1,868.00	\$ 45,656.85	\$ 1,925.05	\$ 11,722.76	\$ 13,647.81		
FIRES WITHIN AND WITHOUT FOREST RESERVES																											
Campers	62	13	14	6	95	27,667	351	28,018	8,720	13	12,998	6,287	708	2,520	\$ 1,651.75	6,285	93,358	\$ 40,709.76	\$ 42,361.51	\$ 30,395.88	\$ 100.00	\$ 72,857.39	\$ 1,142.08	\$ 7,886.79	\$ 9,028.87		
Smokers	5	8	10	1	24	5,063	412	5,475	19	3	1,249	3,929	12	3		39	38	55.50	55.50	4,248.65	110.00	4,414.15	227.52	891.02	1,118.54		
Settlers	1	6	16	6	29	3,689	4,774	8,463	252	396	952	6,863	24	38	10.75	5	3,455	884.37	895.12	1,323.75	10.00	2,228.87	281.21	512.42	793.63		
Railways	6	1	3		10	40	71	111				111									8.00		8.75	12.10	3.00	15.10	
Lightning	12	9	7	7	35	39,048	287	39,335	26,753	260	7,469	4,853	570			48,246	280,025	157,574.14	157,574.14	15,925.63		173,500.77	2,211.95	34,505.88	36,717.83		
Industrial Operations	4	2	2		8	805	160	965	322	165	478	1,603		25		34	36	95.06	95.06	2,391.25	5,240.00	7,726.31	226.31	1,094.26	1,320.57		
Incendiary	3	5	15	2	25	4,394	1,058	5,452	408	296	410	4,338		16,355	266.25	8	680	261.74	527.99	1,284.37		1,812.36	174.61	417.01	591.62		
Unclassified	2			3	5	79,375	27,047	106,422	65,624		27,198	13,600	7,000		7,000.00	830,789	375,735	1,210,989.93	1,217,989.93	56,377.25		1,274,367.18	2,395.47	66,629.34	69,024.81		
Unknown	7	2	4	3	16	10,168	45	10,213	2,787	35	838	6,553	30	4,200	1,080.00	445	17,284	8,816.02	9,896.02	3,118.50		13,014.52	452.21	3,479.11	3,931.32		
Public Works	1				1																						
TOTALS	103	46	71	28	248	170,249	34,205	204,454	104,885	1,168	51,867	46,534	9,947	23,141	\$10,008.75	885,851	770,611	\$1,419,387.27	\$1,429,396.02	\$115,066.28	\$5,468.00	\$1,549,930.30	\$ 7,123.46	\$115,418.83	\$122,542.29		
SUMMARY BY DIVISIONS																											
Cypress Hills																											
Crownest-Bow River	15	9	7	8	39	117,893	27,247	145,140	88,095	371	32,933	23,741	9,193	60	\$ 7,000.00	860,372	650,603	\$1,347,751.08	\$1,354,751.08	\$ 72,738.90	\$5,340.00	\$1,432,829.98	\$ 4,420.65	\$ 93,819.80	\$ 98,240.46	14	
Clearwater	2	3	2	3	10	16,617	17	16,634	13,708		2,168	758				21,265	112,928	63,633.97	63,633.97	3,126.63		66,760.60	812.69	14,560.85	15,373.54	412	
Brazeau	11	1	2		13	201		201	175		26					2,500	629	4,221.75	4,221.75	23.25		4,245.00	139.58	1,073.25	1,212.83		
Athabaska	1	2	2	1	6	4,087		4,087	447		576	3,064		35	26.25	1,093	502	1,282.12	1,308.37	1,008.75		2,317.12	435.46	983.45	1,418.91	10	
*N.A.F.D.	74	31	59	16	180	31,451	6,941	38,392	2,460	797	16,164	18,971	754	23,046	2,982.50	621	5,949	2,498.35	5,480.85	38,168.75	128.00	43,777.60	1,315.07	4,981.48	6,296.55	983	
TOTALS	103	46	71	28	248	170,249	34,205	204,454	104,885	1,168	51,867	46,534	9,947	23,141	\$10,008.75	885,851	770,611	\$1,419,387.27	\$1,429,396.02	\$115,066.28	\$5,468.00	\$1,549,930.30	\$ 7,123.46	\$115,418.83	\$122,542.29	1,419	

*N.A.F.D.—Northern Alberta Forest District.

Personnel.—The Forest Service staff remained practically identical with that of the preceding year with regard to individuals. There was no change in total staff employed.

There is nothing to add to the reports of previous years where the shortage of staff has again and again been emphasized. If the province has been fortunate in that fire outbreaks have not coincided with districts bare of personnel, it is certain that this will not always obtain. When outbreaks occur in unmanned districts the field staff weakness of the Service will be very apparent. The danger is that field staff is completely lacking in some districts that contain valuable timber which will be of commercial importance very soon. It will indeed be a misfortune if a heavy loss occurs before the necessity of protection is translated into action.

Fire-fighting Equipment.—The equipment situation remains unchanged and it is with regret that improvement in quantity cannot be reported. Funds made available for this purpose scarcely cover the necessary replacement of the present supply. If fires are to be fought effectively, the most modern proved equipment should be available in adequate supply.

Co-operation.—Co-operation which may be found in existence and which has appeared as a natural development and without any special effort is always mutually beneficial to all parties concerned. In order that co-operative effort in the interest of forest protection may reach its highest level, it is necessary that everyone has a reasonably good understanding of the benefits that the forests have in store for them. In order to arrive at this understanding, it appears that a programme of education is necessary. Largely, the forest protection work now in hand in this province is concerned with minimizing loss by fire and, aside from lightning, it is concerned with protecting a resource from acts of carelessness by the owners. The people, as the owners of the forest resource, must, if possible, be brought to a realization that this ownership is a trust. They should look on the resource as one to be used conservatively and to be handed on to their children unimpaired or improved. It is the little acts of carelessness that usually count in connection with protection work. These are nearly always the origin of fires, both large and small, and it is only too evident that the solution of the protection problem is largely in the people's hands.



Junction of the Wabiskaw and Chipewyan rivers

The broad problem of co-operation within the province has been indicated but there remains another serious matter of co-operation that must soon be arranged. This problem cannot be viewed or classified as one which would be mutually beneficial to all concerned, at least not directly. Nationally, the solution is one of great importance but, provincially, the benefits may not be so readily apparent. The solution demands a broad view and a definite undertaking to shoulder provincial responsibilities when such are of vital concern to other provinces.

The enormous loss and expense incurred through the spread of outside fires into this province has been referred to previously in this report. It must be emphasized that the occurrence of 1936 is one of many which have been experienced. With such conditions being a fairly regular event it is unquestionably apparent that the time has arrived to view forest protection from a national angle in addition to a provincial one. It must be evident that it is not good for the dominion if an advance in one province is nullified by lack of action in another. This matter has been referred to in previous reports. It demands courageous and unselfish action.

FOREST ADMINISTRATION

Provincial Forest Reserves.—This section of the Report deals with timber disposal from the forest reserves. A review of the statement "Summary of Timber Operations on Provincial Lands" will indicate a considerable increase in sawn lumber and a decrease in practically all other forms of forest products in so far as forest reserves are concerned. It is hoped that those areas held under timber berth, and which were severely damaged by fire, will be logged off to the end that reasonable salvage of the damaged timber may result.

TIMBER CUT UNDER PERMIT, ALBERTA FOREST RESERVES—FISCAL YEAR 1936-37

	Cooking Lake	Cypress Hills	Crowstest- Bow River	Clearwater	Brazeau- Athabaska	Totals
Number of permits	4	302	382	23	53	764
Fuelwood, dry, cords	4	1,070	5,052	50	222	6,398
Fuelwood, green, cords		40	35			75
Mine timber, dry (lineal feet)			625,908	76,000	9,624	711,532
Mine timber, green (lineal feet)			29,980	27,466		57,446
Lagging, cords						
Lagging (lineal feet)			177,000	26,000		203,000
Fence posts	500	730	5,945		214	7,389
Sawlogs (Fbm.)			247,456	4,000		251,456
Round timber (pieces)	140	24,947	18,226	144	338	43,795
Round timber (lineal feet)			27,841	2,380	3,869	34,090
Fence droppers (pieces)		320	1,600			1,920
Fence droppers, cords		1				1
Telephone poles (pieces)			100			100
Telephone poles (lineal feet)			4,055			4,055
Railway ties, green (pieces)			338			338

Provincial Lands.—The administration of the timber resources on all provincial crown lands was continued in the same manner as during the previous year.

A considerable increase in demand for Alberta lumber from the middle western United States and Ontario was evident during the year and was the major factor in the securing of very much better prices and in encouraging a noticeable increase in production. The total manufacture of sawn lumber from timber on provincial lands showed an increase of over 17 per cent above the figures for the preceding year, whilst prevailing prices for Alberta lumber averaged approximately 20 per cent higher at the close of the fiscal year under review than at its commencement. Other timber products did not, however, share in the improved condition of the lumber market, practically all other products showing a reduction in quantities manufactured.

The manufacture of railway ties, a very important branch of the timber industry in Alberta, fell off by nearly 15 per cent from the high level of the previous year. This is accounted for partly by a reduction in contracts awarded by the railway companies after three years of comparatively heavy purchases, and partly by the fact that a considerable number of ties cut in excess of contract requirements during the preceding year were utilized in filling contracts during this year. Contract prices on railway ties remained unchanged from the previous year.

The period covering reduction in dues on lumber cut from timber berths in the province between October 1st, 1933 and September 30th, 1934 and extended to June 30th, 1936 was again extended by order in council to all such material cut or to be cut prior to September 30th, 1937. These reductions apply to lumber alone and it is perhaps significant that this is the only class of material showing increased production during the year. In any case there is no doubt that these reductions have had a decidedly beneficial effect on lumber production and on employment in the industry.

The tendency towards curtailed operations on the larger berths and an increase in the number of small operations which has been evident for several years is again very noticeable. Production from licensed timber berths again this year shows a considerable falling off in all classes of material, whilst the number of permit berths and the quantities of practically all classes of material produced therefrom show substantial increases. Owing, however, to the fact that the regulation under which special permits to cut timber from isolated tracts not exceeding 160 acres in area was suspended for some seven weeks in the late fall when the demand for timber is heaviest, there was a decrease in the number of such permits granted. Only 190 were issued in 1936-37 as compared with 261 in the previous year.

The arrangement between this Department and the Bureau of Relief and Public Welfare, under which permits authorizing the cutting of railway ties, telephone poles and various classes of material for the Department of Public Works are issued on behalf of parties who would otherwise be dependent on relief, was continued with satisfactory results.

An act to amend the Provincial Lands Act (Cap. 76, 1937) passed by the legislature amongst other amendments makes certain enactments affecting the administration of timber resources. Amongst these are certain changes which are designed to authorize the making of new regulations governing the disposal of the right to cut timber on areas greater than can be dealt with under Section 28 of the Timber Regulations, i.e. greater than the maximum area which may be classed as a timber permit berth.

The present regulations covering disposal of licensed timber berths have been suspended for over two years and although the demand for larger tracts of timber has been at a very low ebb since 1930 it is thought the improvement in demand and prices for lumber may, if sustained, lead to a demand for larger stands of timber.

Other changes in the act cover collection by this Department of taxes under the provisions of the Timbered Areas Tax Act, the administration of which, including the collection of considerable arrears, was transferred from the Department of Municipal Affairs to the Department of Lands and Mines as at January 31st, 1937.

Another quite important amendment provides that on licensed timber berths, granted prior to the transfer of the natural resources, operations must begin not later than December 31st, 1939, failing which such berths will become subject to cancellation.

In last year's Report reference was made to the very considerable quantities of timber cut free of dues in the province. Although for several years the number of new homesteads taken up annually has been steadily and rapidly falling, only a slight decrease is noted in the number of applications by homestead settlers for free permits. During the year under review no less than 7,420,098 Fbm. of lumber, 140,983 lineal feet of building logs, 312,930 fence posts, 1,402,664 fence rails, 273,727 roof poles and 6,249 cords of fuel were covered by such permits. In addition to this 1,817 telephone poles were cut free of dues for the purpose of placing in good order telephone lines taken over from the government by rural mutual companies, also 913,716 Fbm. of lumber and 87,229 lineal feet of building logs were cut free of dues for the construction of educational, religious and charitable institutions, agricultural and society buildings and rural community halls. It is estimated that material cut under free permits during the year is representative of dues which would have amounted to over \$70,000 had this material been subject to the regulation rates.

Whilst the question of abolishing the free allowance of timber for homestead settlers will have to be faced eventually as it already has been in other western provinces, a step in this direction might be taken by reducing the period of seven years during which a settler may be granted this free allowance to say three. It seems fairly obvious that the greatest need for such assistance is during the first years of settlement and the restriction suggested would tend to reduce the excessive cut being made under this privilege without inflicting hardship.

The very heavy demands of inspection and supervision of timber operations made upon the timber inspectors in recent years were maintained, there being a slight increase in the number of inspections and investigations requested and made over the corresponding number for the previous year, which was by far the heaviest up to that time. Inspection reports submitted reached a total of 2,811 in comparison with 2,796 for 1935-36.

The following table summarizes the timber business transacted at Head Office in respect to the former Edmonton Agency District and to the land agencies of Calgary, Peace River and Lethbridge:

(a) MANUFACTURES FROM TIMBER BERTHS HELD UNDER

YEARLY LICENSE:

	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
Number of active operations.....	38	12			50
Lumber in feet board measure.....	33,021,285	1,541,661			34,562,946
Railway ties.....	44,906				44,906
Round timber (including mine timber) in lineal feet.....	28,925				28,925
Lath.....	3,637,815				3,637,815
Shingles.....	59,750				59,750
Cordwood, cords.....	577				577

(b) MANUFACTURES FROM TIMBER BERTHS HELD UNDER

YEARLY PERMIT:

	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
Number of active operations.....	233	14			247
Lumber in feet board measure.....	41,294,254	1,243,077			42,537,331
Railway ties.....	914,259	36,818			951,077
Round timber (including mine timber) in lineal feet.....	245,748				245,748
Lath.....	3,001,631				3,001,631
Shingles.....	440,250				440,250
Cordwood, cords.....	1,298	15			1,313

(c) TIMBER PERMITS ISSUED AUTHORIZING THE CUTTING OF MATERIAL SHOWN HEREUNDER:

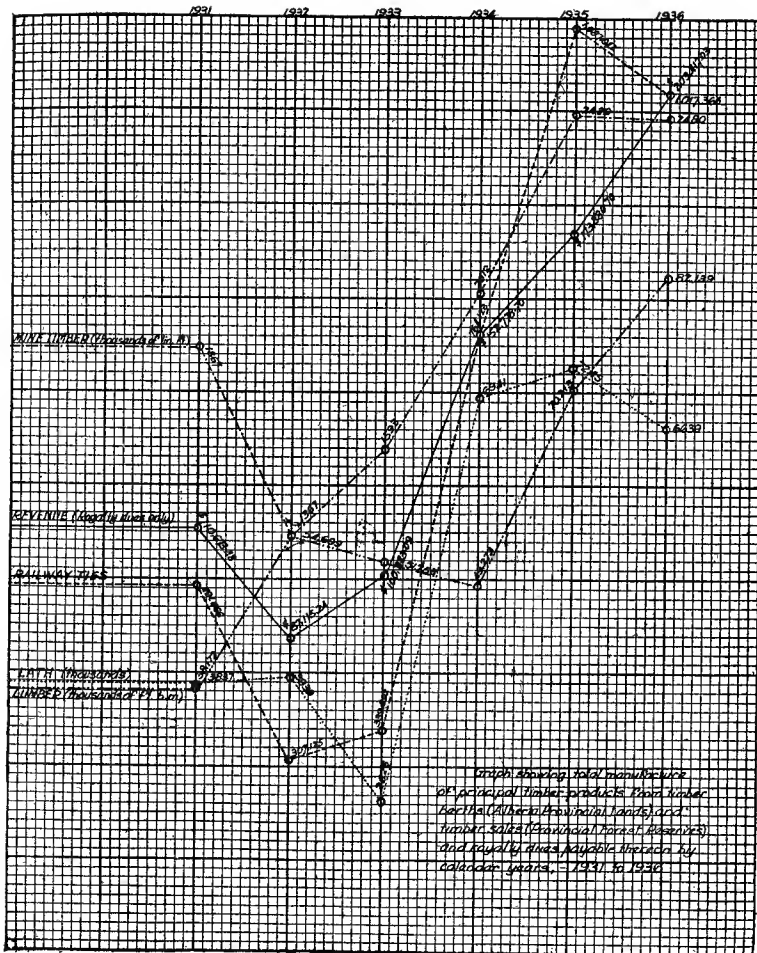
	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
Number of permits issued.....	1,549	224	745	26	2,544
Lumber in feet, board measure.....	10,927,405	1,345,414	4,697,626		16,970,445
Railway ties.....	122,232	37,564	4,000		163,796
Piling, lineal feet.....	9,344		4,454		13,798
Mining timber, lineal feet.....	366,562	92,400		5,000	463,962
Telegraph and telephone poles.....	5,169	150	500		5,819
Building logs, lineal feet.....	115,180	20,750	148,213		284,143
Fence rails.....	571,404	22,125	706,565		1,300,094
Fence posts.....	177,839	7,480	166,570	300	352,189
Roof poles.....	133,720	2,430	141,052		277,202
Shingles.....	387,000		62,000		449,000
Shingles bolts, cords.....	20	147	253 1/2		420 1/2
Lagging, cords.....	380,000				380,000
Fuel wood, cords.....	7,496	1,655	1,538	221	10,930
Lath.....	168,000				168,000
Boxwood, cords.....	10				10
Guard rails.....	5,000				5,000
Fence droppers.....	1,200				1,200

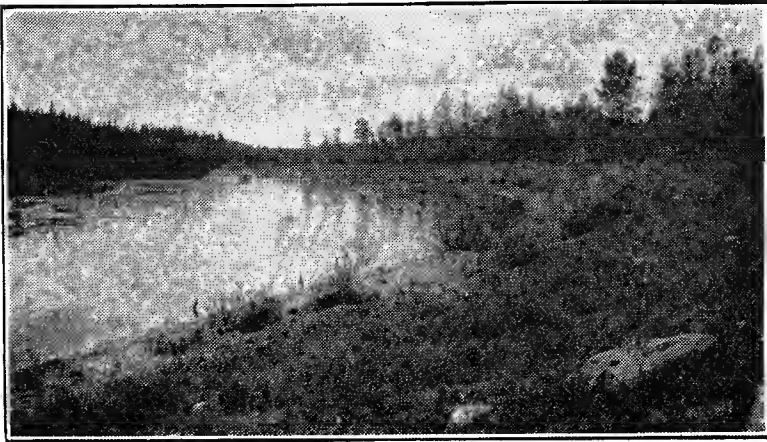
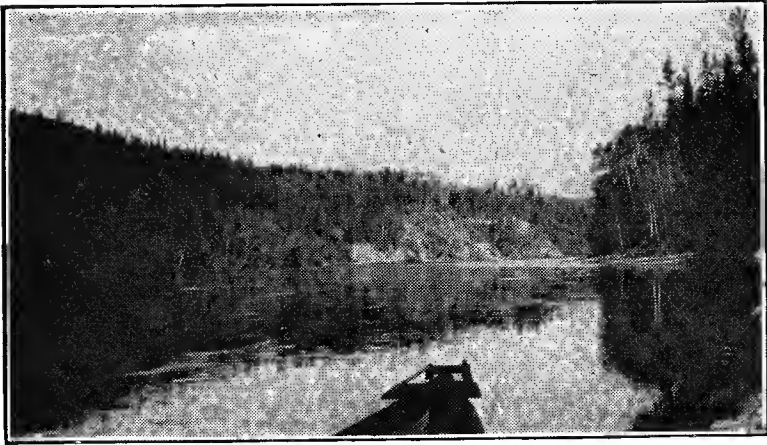
(d) SEIZURES MADE IN RESPECT TO ILLEGAL CUTTING, NON-PAYMENT OF DUES, ETC., COVERING MATERIAL SHOWN HEREUNDER:

	Head Office, Edmonton District	Calgary Agency	Peace River Agency	Lethbridge Agency	Totals
Number of seizures made.....	152	10	27		189
Lumber in feet board measure.....	1,353,256	219,850	475,344		2,048,450
Logs in lineal feet.....	32,890	1,068	5,874		39,832
Railway ties.....	6,485	1,450			7,935
Telegraph and telephone poles.....	2,356				2,356
Fence rails.....	1,250	180			1,430
Fence posts.....	4,125				4,125
Roof poles.....	1,810	10			1,820
Fuel wood, cords.....	147	13	38		198
Mine timber, lineal feet.....	42,165	8,560			50,725
Shingles.....	79,500		15,000		94,500
Shingle bolts, cords.....	17				17

SUMMARY OF TIMBER OPERATIONS ON PROVINCIAL LANDS, 1936-37

	Licensed Timber Berths	Permit Timber Berths	Forest Reserve Timber Sales	Provincial Lands Timber Permits	Forest Reserve Timber Permits	Totals
No. of active operations	50	247	19	2,544	764	3,624
Lumber (feet, board measure)	34,562,946	42,537,331	4,830,824	16,970,445	251,456	99,153,002
Railway ties	44,906	951,077	21,383	163,796	.....	1,181,162
Piling (lineal feet)	.....	.....	.....	13,798	.....	13,798
Mine timber (lineal feet)	.....	245,748	1,520,260	463,962	973,668	3,232,563
Lath	28,925	3,001,631	.....	168,000	.....	6,807,446
Telegraph and telephone poles	.....	.....	.....	5,819	315	6,134
Building logs (lineal feet)	.....	.....	.....	284,143	734,810	1,018,953
Fence rails	.....	.....	.....	1,305,094	.....	1,305,094
Roof poles	.....	.....	.....	277,202	.....	277,202
Fence posts	.....	.....	.....	353,389	9,310	362,699
Shingles	59,750	440,250	.....	449,000	.....	949,000
Shingle bolts (cords)	.....	.....	.....	420 1/2	.....	420 1/2
Cordwood (cords)	577	1,313	.....	10,940	6,473	19,303
Number of inspection reports submitted by timber inspectors	.....	.....	.....	.....	.....	2,811
Number of seizures made	.....	.....	.....	.....	.....	189





Timber on the Wabiskaw River

GRAZING

Under the regulations for provincial forest reserves grazing is dealt with in addition to other uses and control of the grazing use is provided in the interest of forest management amongst the multiple uses of lands found to exist within the reserves.

The authorization of grazing use is by way of annual permit, payment for which is on the basis of number of stock grazed and the period of time the stock is on forest reserve range. Flexibility which is so desirable where diversified use of lands exists is assured under the present permit system and reasonable assurance of continuity of use for the stockmen is given by the opportunity to establish rights for renewal permits.

In practically all instances the grazing range is being maintained in a satisfactory condition. The control exercised allows for conservative utilization, a feature that is important in years of drought.

Certain reductions in the authorized carrying capacity of range were necessary due to continued drought. A considerable reduction in the total number of

permits issued and in the number of cattle grazed is shown by the grazing statement. The carrying capacity of home ranges, being reduced by drought, has probably been followed by a reduction in herds which, in turn, is reflected in the grazing statement.

GRAZING STATEMENT—ALBERTA FOREST SERVICE, 1936-37

Forest	No. of Permits	No. of Horses	No. of Cattle	No. of Sheep
Cypress Hills	69	295	2,733	.....
Crowsnest	198	780	13,038	3,843
Bow River	72	596	7,248	1,600
Clearwater	45	225	319	.....
Brazeau	102	261	69	.....
Athabaska	11	284	.....	.....
TOTALS.....	497	2,441	23,407	5,443

COMPARATIVE STATEMENT, GRAZING—ALBERTA FOREST SERVICE

Grazing year—	1931	1932	1933	1934	1935	1936	Totals	Average
Number of permits	456	606	493	517	533	497	3,102	517
Number of cattle	15,041	20,086	20,230	22,557	25,097	23,407	126,418	21,070
Number of horses	3,417	3,377	3,185	2,541	2,207	2,441	17,168	2,861
Number of sheep	4,379	7,465	6,705	3,078	4,114	5,443	31,184	5,197

IMPROVEMENTS

The maintenance of completed projects for the last several years has been principally the work done on improvements. In the interest of fire protection and administration a large investment was made by the dominion government on improvements such as trails, telephone lines, buildings, roads, look-out cabins and towers and other miscellaneous works. The aim has been to keep these works up to a good usable standard and, where a real necessity existed, to add to the projects by new construction in order to round out partially developed units or districts but there are large forest districts that are almost entirely unprepared for anything but the most elementary form of forest protection and a number of these districts is now producing the majority of manufactured forest products.

Forest protection to be properly arranged requires that an experienced staff be employed, that fire-fighting equipment be adequate, that detection services and lines of communication be established. So far as improvements are concerned there is a glaring lack of detection and communication.

The absence of these facilities in districts that are immediately important to the timber industry should be corrected with as little delay as possible. The expenditure involved will be more than offset by the reduction in timber loss and fire-fighting costs and the industry will be placed on a more secure footing with regard to raw material.

Relying on the protective staff for all maintenance work, as has been the case during the last few years, it will be evident that the amount of maintenance work accomplished will depend largely on the fire season that develops. During the 1936 season it was not possible to devote a large portion of time to maintenance work in the foothill and mountain country due to the intensity of the fire hazard and to the presence of fires in many districts.

In northern Alberta the field staff was able to accomplish considerable work and, in particular, in the Slave Lake and Fort McMurray divisions work of an emergency nature was dealt with.

In the summer of 1935 at the village of Slave Lake exceptionally high water occurred which inundated a large part of the village, the highway and railroad. It was decided that the then site of the village on the east end of the lake at the outlet was unsafe for occupation and a new site was chosen adjacent to the railway station.

During the winter arrangements were made for moving all divisional headquarters' forestry buildings to the new village and, with this accomplished, the necessary work of constructing foundations, setting buildings, repairing damage caused by moving and other miscellaneous work was done largely by the seasonal staff as other work permitted. This work was completed with the exception of painting.

During the spring break-up on the Athabaska River ice conditions below Fort McMurray caused a flood which accompanied by the tremendous cakes of ice wrecked everything that it reached. The forestry headquarters' buildings for the Fort McMurray division were located along the south bank of the Snyc and were completely wrecked. A considerable loss of equipment was natural though the staff through strenuous efforts, and facing grave danger, successfully moved a considerable quantity during the flood. Boats, canoes and engines were saved and later a careful search, after the flood receded, resulted in recovery of a number of tools.

Through negotiation with the Department of Municipal Affairs a lot was secured on which a new headquarters has been erected. The material from the damaged buildings was salvaged and augmented by new material. The office was reconstructed and a new combined workshop-storehouse, boatshed and woodshed were built. This work was almost entirely done by the seasonal staff as other work permitted. Naturally under such circumstances progress was interrupted from time to time but at the end of the season the buildings were finished and a very satisfactory unit completed. In addition, the speeder house at Waterways had been washed away. This was replaced by one built from salvaged material.

NEW CONSTRUCTION PROJECTS: IMPROVEMENTS—STATEMENT OF MAN-DAYS WORKED

Forest	Houses	Garages, Sheds, etc.	Fences	Fields (Breaking)	Water Supplies	Telephones	Corrals	Barns and Stables	Bridges	Look-out Towers	Trails	Cabins	Fireguard Roads	Tourist Stoves	Miscel- laneous
Cypress Hills	...	11 1/2	1 1/2	...	...	...	...	26 1/2	...	...	...	1	3 1/2	...	7 1/2
Crownest	226 1/2	12	11	...	14 1/2	...	9 1/2	43	...	...	10	...	...	...	10 1/2
Bow River	...	39	...	...	...	...	...	...	...	...	...	...	...	...	...
Clearwater	...	16	...	...	93	47	...	...	...	...	...	...	...	...	3
Brazeau	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Atiabaska	41 1/2	25	12	...	...	...	...	...	...	...	...	...	...	...	44 1/2
TOTALS	268	103 1/2	24 1/2	...	107 1/2	48	9 1/2	69 1/2	...	...	10	1	3 1/2	...	65 1/2

Forest	Houses	Cabins	Barns and Stables	Telephones	Trails	Roads	Fences	Corrals	Water Supplies	Garages, Sheds, Etc.	Look-out Towers and Cabins	Grounds	Hay Meadows & Pastures	Fertiles	Miscel- laneous
Cypress Hills	10	8	3 1/2	18	78 1/2	8	91 1/2	...	1	5 1/2	6 1/2	20	2 1/2	...	6
Crownest	113	1 1/2	7	157 1/2	335	180	165	23 1/2	14	7	1 1/2	21	28	...	18 1/2
Bow River	85	40	9	230	340	...	72	2	...	17 1/2	...	34	...	...	7 1/2
Clearwater	19	103	119	119	340	...	36	3	...	1	...	83	...	10	15
Brazeau	33 1/2	28	4	152	437	...	27 1/2	...	15	5 1/2	8	4	...	...	...
Atiabaska	1	64	3	39 1/2	296 1/2	49	...	...	...	1	1	...	...	...	14
TOTALS	261 1/2	243 1/2	26 1/2	716	1,487	317 1/2	392	29 1/2	30	37 1/2	16	162	30 1/2	10	61

NURSERY AND TREE DISTRIBUTION

Nursery.—A considerable amount of transplanting and seeding was effected at Oliver in the fall of 1936 and also at the subsidiary nurseries at Ponoka, Fort Saskatchewan and Lethbridge. A lot of damage was caused, however, by the flooding of transparent beds at Oliver and further transplanting was necessary in the spring to make up for the mortalities in the fall transplanting.

The following is a statement of the seeding done at the Oliver nursery in the fall of 1936 and the spring of 1937:

173 lineal feet	Lodgepole pine (<i>Pinus murrayana</i>)
70 " "	Siberian larch (<i>Larix sibirica</i>)
21 " "	Douglas fir (<i>Pseudotsuga mucronata</i>)
281 " "	White spruce (<i>Picea glauca</i>)
12 " "	Cedar (<i>Thuja occidentalis</i>)
8 " "	Balsam fir (<i>Abies balsamea</i>)
42 ounces	White elm (<i>Ulmus americana</i>)
24 " "	Green ash (<i>Fraxinus pennsylvanica</i>)

The last two named were planted in rows and not in the seed-beds. The seed-beds are four feet wide, one lineal foot equaling four square feet. Most of the Green ash seed planted in the fall of 1936 was blown out by a violent windstorm.

In the fall of 1936 and the spring of 1937 the following stock was removed from the seed-beds to the transplant beds at Oliver:

8,100	Lodgepole pine (<i>Pinus murrayana</i>)
800	Ladoga pine (<i>Pinus sylvestris</i> —Bugnet)
2,400	Scotch pine (<i>Pinus sylvestris</i>)
115,000	White spruce (<i>Picea glauca</i>)

Of the White spruce, which comprised the bulk of the stock transplanted, 110,000 were set out into the transplant beds. About 25% of these were planted early enough to enable them with the May and early June rains to take hold well but the remainder encountered a long period of dry weather which began just after they were planted and which was very hard on the plantation.

A period of extremely warm weather in the late winter was experienced at Oliver. Snow melted and in most areas the ground was left bare. Cold weather returned and did much damage to the seedlings and transplants which were exposed to it without protection. As stated previously damage was extensive, especially in the younger plantations and further transplanting was necessary in the spring to make up for the loss.

At the Fort Saskatchewan nursery 56,000 White spruce and 5,000 Lodgepole pine were planted.

At the Lethbridge nursery the growing of White spruce transplants has not been very successful. It is thought that the extent to which the trees there are exposed to sunlight has had an adverse effect, and it appears that more shelter will be required before the White spruce will do well. Lodgepole pine seedlings for planting in this nursery were obtained from the Cypress Hills forest.

The following is a list of the seedlings at Oliver which should be transplanted next fall or spring:

White spruce (<i>Picea glauca</i>)	190,500
Scotch pine (<i>Pinus sylvestris</i>)	9,000
Common spruce (<i>Picea tianschanica</i>)	4,500
Colorado blue spruce (<i>Picea pungens</i>)	6,000
Red pine (<i>Pinus resinosa</i>)	80
Douglas fir (<i>Pseudotsuga mucronata</i>)	30

Tree Distribution.—More trees were given out from Oliver in 1937 than at any time since the first year the nursery was operated. The species and quantities were as follows:

<i>Transplants:</i>		
Siberian larch (<i>Larix sibirica</i>)	1,905	
Lodgepole pine (<i>Pinus murrayana</i>)	54,800	
Scotch pine (<i>Pinus sylvestris</i>)	30,110	
White spruce (<i>Picea glauca</i>)	5,970	
Green ash (<i>Fraxinus pennsylvanica</i>)	9,005	
White elm (<i>Ulmus americana</i>)	3,575	
Bur oak (<i>Quercus macrocarpa</i>)	8,100	
Red oak (<i>Quercus rubra</i>)	2,210	
Jack pine (<i>Pinus banksiana</i>)	1,315	
		116,990
<i>Cuttings:</i>		
Russian poplar (<i>Populus balsamifera</i>)	16,180	
Laurel leaf willow (<i>Salix pentandra</i>)	12,600	
Golden willow (<i>Salix vitellina</i>)	2,310	
		31,090
<i>Ornamental and Exotic Species:</i>		
Lilacs (<i>Syringa japonica</i>)	71	
Mountain ash (<i>Pyrus americana</i>)	65	
Honeysuckle (<i>Lonicera ciliosa</i>)	138	
Ginnalian maple (<i>Acer ginnala</i>)	75	
Native hawthorn (<i>Crataegus</i>)	125	
Catalpa (<i>Catalpa bignonioides</i>)	20	
Silver maple (<i>Acer saccharinum</i>)	20	
Plum (<i>Prunus nigra</i>)	395	
Cotoneaster (<i>Acutifolia</i>)	317	
Buckthorn (<i>Rhamnus</i>)	10	
White ash (<i>Fraxinus americana</i>)	100	
Crab-apple (<i>Malus baccata</i>)	13	
Manitoba maple (<i>Acer Negundo</i>)	279	
Flowering almond (<i>Prunus triloba</i>)	8	
Pygmy catagana (<i>Caragana pygmaea</i>)	12	
		1,648
TOTAL		149,728
<i>From Ponoka Nursery:</i>		
Scotch pine (<i>Pinus sylvestris</i>)	2,000	
Lodgepole pine (<i>Pinus murrayana</i>)	6,400	
		8,400

A total of 723 applications was approved, of which 689 were for individuals, 21 for schools and 13 for institutions. Five applicants did not take delivery of their trees at the railway stations and in each instance as in previous years the railway company was instructed to give the trees to anyone who would pay the express charges.

The following seedlings and transplants will be suitable for shipping next year:

<i>Oliver Nursery:</i>	
Lodgepole pine (<i>Pinus murrayana</i>)	25,000
White spruce (<i>Picea glauca</i>)	2,500
Colorado blue spruce (<i>Picea pungens</i>)	1,000
Green ash (<i>Fraxinus pennsylvanica</i>)	9,800
White elm (<i>Ulmus americana</i>)	9,000
Nordman fir (<i>Abies nordmanniana</i>)	6,000
Bur oak (<i>Quercus macrocarpa</i>)	5,000
Red oak (<i>Quercus rubra</i>)	2,000
Mountain ash (<i>Pyrus americana</i>)	950
Ladoga pine (<i>Bugnet—Pinus sylvestris</i>)	150
Birch (<i>Betula alba</i>)	200
Scotch pine (<i>Pinus sylvestris</i>)	1,400
<i>Ponoka Nursery:</i>	
Scotch pine (<i>Pinus sylvestris</i>)	16,150
Lodgepole pine (<i>Pinus murrayana</i>)	7,555

There are also 5,000 Lodgepole pine at the Fort Saskatchewan nursery which, if required, could be distributed in 1938 but it is suggested that they be left until 1939 as these were only transplanted recently and will probably not show much growth this year.

The shipping of trees took a full month in 1937, the first shipment going on April 22nd and the last one on May 22nd. This is too long a time to permit the trees to be sent out at their best and as already pointed out more space is

essential if speed is to be increased. A roughly built structure covering a wide area, say 35 ft. \times 35 ft., would add immensely to the speed and convenience of parcelling for it becomes more important each year to get the trees out quickly owing to the increasing varieties of species to be shipped.

GAME

In July 1936 the Game Branch was transferred from the Department of Agriculture to the Department of Lands and Mines and later the Assistant Director of Forestry was appointed Game Commissioner. Forest protection work was continued by this official and game administration carried on at the same time.

It was recognized that the field staff of the Forest Service was eminently suited to carry on field work of the Game Branch and that it would be possible to effect a great improvement in the field work of this branch if the Forestry staff, slightly augmented and employed for longer periods, was made responsible for game administration as well as forest protection. It was evident to those conversant with the requirements of both divisions of the Department that the work is closely related, that it begged consolidation which, if done, would produce good results for the Game Branch without unduly affecting results of the Forestry. To be workable, that is to avoid divided authority, it required that a Forestry official be in charge of the Game Branch. It was known that the arrangement would result in a large amount of extra work for the official appointed to the dual responsibility, but it was felt that with the indication of extra office assistance it could be done.

While the matter of a report on Game administration is properly one for the Game Branch, it must be recorded here that the scheme was working out satisfactorily so far as the Forest Service was concerned and the entire staff was keenly interested in bringing about an improvement.

In order that the situation might be dealt with more intensively than had been possible heretofore, arrangements were made by the Game Commissioner to extend the normal period of employment for forest rangers. In a large number of cases the rangers' employment period was extended to beyond the closing date of the big game hunting season. In addition, provision was made to employ a number of these officials on game administration through the winter period. While the latter arrangement was cancelled early in January, 1937, excepting in the case of four men, it resulted in a total of 3,121 man-days being used on game work.

PUBLICITY

There is very little, if any, improvement which can be recorded respecting publicity in the interests of fire prevention. Aside from the usual press notices when large and destructive fires occur, the reference to the forest problem is spasmodic. The problem of forest protection must to a large degree be solved by an enlightened public, one that understands the importance of the forest resource, the need for fire prevention and of regulated use of the forest. The opportunity to accomplish this through the press and radio goes largely unused.

MILEAGE TRAVELLED BY EMPLOYEES OF THE ALBERTA FOREST SERVICE

FISCAL YEAR 1936-37

Divisions	Foot	Saddle	Driving	Speeder	Auto	Canoe	Rowboat	Motorboat	Plane	Railway	Steamer	Raft	Dogteam	Tractor	Total
Northern Alberta Forest District	28,455	46,058	15,353	15,991	94,441	6,240	89	4,452	383	12,913	1,141	2	3,441	.....	228,959
Crowsnest-Bow River Forest	5,591	46,586	3,119	.....	61,364	.....	8	.....	350	1,011	.....	.....	401	121	118,551
Clearwater Forest	3,934	17,033	.....	2,331	12,004	.....	.....	.....	.....	201	.....	.....	.....	.....	35,503
Brzeau-Athabaska Forest	3,335	17,412	.....	5,630	1,434	.....	.....	.....	.....	1,882	.....	.....	.....	.....	29,693
TOTALS	41,315	127,089	18,472	23,952	169,243	6,240	97	4,452	733	16,007	1,141	2	3,842	121	412,706

Accounting Division

REPORT OF THE ACCOUNTANT, I. N. McKINNON

A surplus of \$996,719.59 on income account was shown for the period ending May 31, 1937, an increase of \$348,788.38 over the previous year. Included in this year's figures, however, is a surplus of \$83,389.84 on operations of the Game Branch, transferred to this Department in June, 1936.

Revenue for the year was \$1,646,496.09, an increase of \$494,020.31, which includes Game Branch revenue of \$117,989.84. Every branch of the Department showed an improvement over the previous year, the most notable being an increase of \$209,763.83 in mining lands and \$102,176.29 in school lands. Particulars of revenue by branches will be found in Statement "B".

Expenditure amounted to \$649,776.50, an increase of \$145,231.93. Fire-fighting expenses were up \$118,696.48 and were responsible for the increase together with the additional expenditure of the Game Branch and the Toronto Coal Marketing Office, both transferred to the Department during the year. Game Branch expenditure was \$34,599.50 and that of the Coal Marketing Office, \$4,364.52.

Total cash received from all sources amounted to \$1,807,855.35, as against \$1,310,890.21 for the previous year. Particulars are given in Statement "A".

INDEX TO STATEMENTS

- A.—Statement of Cash Receipts from all sources
- B.—Statement of Income Revenue by Branches
- C.—Statement of Cash Receipts, School Lands Branch
- D.—School Lands Trust Fund Balance Sheet
- E.—Statement of Alberta School Lands Sales Revenue Account
- F.—Statement of Collections on Tax Recovery Lands
- G.—Statement of Homestead Entries Granted

STATEMENT OF CASH RECEIPTS FROM ALL SOURCES

STATEMENT A.

From April 1, 1936 to March 31, 1937

	Gross Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
<i>Lands and Grazing Branch:</i>			
Cancellation fees	\$ 1,308.00	\$ 8.00	\$ 1,300.00
Casual	4,965.62	67.20	4,898.42
Cultivation fees, rentals, etc.	2,597.42	291.98	2,305.44
Filing authority fees	1,060.00		1,060.00
Fur farm fees and rentals	441.89	50.00	391.89
General sales interest	3,543.40		3,543.40
Grazing permits, fees, rentals, etc.	74,064.48	397.65	73,666.83
Hay permits, fees, dues, etc.	3,394.90	114.50	3,280.40
Homestead fees	14,320.00	40.00	14,280.00
Improvement collection fees	5,307.46	101.40	5,206.06
Surface rentals	1,677.95		1,677.95
<i>Timber Branch:</i>			
Casual	2,368.43	2.04	2,366.39
Timber permits, fees, rentals, etc.	331,249.22	2,579.08	328,670.14
<i>Mining Lands Branch:</i>			
Casual	2,453.09		2,453.09
Coal fees, rentals, etc.	116,444.60	306.62	116,137.98
Coal Mines Act sundry revenue	4,663.50	20.00	4,643.50
Coal royalties	175,263.35	49.02	175,214.33
<i>Petroleum and Natural Gas:</i>			
Fees, rentals, etc.	350,687.85	2,561.56	348,126.29
Royalties	108,321.19		108,321.19
Drilling permits	165.00		165.00
Quarrying fees, rentals, etc.	2,206.08	20.00	2,186.08

DEPARTMENT OF LANDS AND MINES

<i>Fisheries Branch:</i>			
Angling permits	9,614.53		9,614.53
Boat licenses	150.00		150.00
Casual	1,495.40		1,495.40
Fishing licenses	13,080.00	22.00	13,058.00
<i>Game Branch:</i>			
Game licenses	59,527.12	3,427.82	56,099.30
Fur tax	62,722.68	1,781.57	60,941.11
Sale of fur	595.40		595.40
Casual	353.53		353.53
<i>School Lands Branch:</i>			
Interest on sales	66,239.82		66,239.82
Miscellaneous	250,066.76	22,543.10	227,523.66
<i>Miscellaneous:</i>			
Casual	5,364.97	61.50	5,303.47
Reimbursement of salaries and expenses	81.83		81.83
Tax recovery office fees	380.80	5.00	375.80
Services and supplies	4,769.86		4,769.86
TOTAL INCOME ACCOUNT	\$1,680,946.13	\$ 34,450.04	\$1,646,496.09
CAPITAL ACCOUNT:			
Land sales principal	10,972.07	104.84	10,867.23
TOTAL INCOME AND CAPITAL ACCOUNTS	\$1,691,918.20	\$ 34,554.88	\$1,657,363.32
UNAPPLIED RECEIPTS CARRIED FORWARD:			
(Subject to Refund)			
Improvements	\$ 14,367.54	\$ 8,152.88	\$ 6,214.66
Suspense	34,188.72		34,188.72
School lands cultivation crop shares	1,000.00		1,000.00
Land patents cultivation crop shares	400.00		400.00
Grazing permits, fees, rentals, etc.	10,000.00		10,000.00
	\$1,751,874.46	\$ 42,707.76	\$1,709,166.70
TRUST ACCOUNT:			
School lands trust fund	55,799.89		
Homesteaders' trust monies	181.00		
TOTAL CASH RECEIPTS	\$1,807,855.35		

STATEMENT B.

STATEMENT OF INCOME REVENUE BY BRANCHES FOR FISCAL YEARS ENDING
March 31, 1936 and March 31, 1937

	Fiscal year ending March 31, 1936	Fiscal year ending March 31, 1937
Lands and Grazing Branch	\$ 80,910.52	\$ 111,610.39
Timber Branch	303,964.31	331,036.53
Mining Lands Branch	547,483.63	757,247.46
Fisheries Branch	21,418.16	24,317.93
Game Branch		117,989.34
School Lands Branch	191,587.19	293,763.48
Miscellaneous	7,111.97	10,530.96
	\$1,152,475.78	\$1,646,496.09

STATEMENT C.

SCHOOL LANDS BRANCH
STATEMENT OF CASH RECEIPTS
April 1, 1936 to March 31, 1937

	Receipts	Refunds	Net Revenue
INCOME ACCOUNT:			
Sales: interest	\$ 66,239.82		\$ 66,239.82
Cultivation fees, rentals, etc.	98,826.95	22,026.30	76,800.65
Miscellaneous leases	382.00		382.00
Timber permits, fees, dues, etc.	19,402.84	180.79	19,222.05
Grazing fees, rentals, etc.	15,271.78	84.81	15,186.97
Hay fees, dues, etc.	1,131.48	42.75	1,088.73
Coal fees, rentals, etc.	5,259.63	45.00	5,214.63
Coal mining royalties	18,596.00		18,596.00
Petroleum and natural gas: fees, rentals, etc.	89,041.70	1.50	89,040.20
Petroleum and natural gas royalties	614.09		614.09
Miscellaneous	2,540.29	161.95	2,378.34
	\$317,306.58	\$ 22,543.10	\$294,763.48
Less amount carried forward to provide for tax refunds on cultivation lease crop shares			1,000.00
	\$317,306.58	\$ 22,543.10	\$293,763.48
TRUST ACCOUNT:			
School land sales principal	55,799.89		55,799.89
TOTAL INCOME AND TRUST ACCOUNTS	\$373,106.47	\$ 22,543.10	\$349,563.37

ALBERTA SCHOOL LANDS TRUST FUND
BALANCE SHEET—MARCH 31, 1937

STATEMENT D.

ASSETS			
Cash in Bank and on Hand		\$ 22,065.16	
Investments:			
Dominion of Canada Debentures		9,928,807.35	
Accounts Receivable:			
Undue Principal	\$1,680,048.36		
Arrears Principal	1,611,286.54		
		<u>3,291,334.90</u>	
			<u>\$13,242,207.41</u>
LIABILITIES			
Alberta School Lands Trust Fund		\$13,242,198.37	
Suspense		9.04	
		<u> </u>	<u>\$13,242,207.41</u>

ALBERTA SCHOOL LANDS SALES
REVENUE ACCOUNT

STATEMENT E.

FOR THE PERIOD APRIL 1, 1936 TO MARCH 31, 1937

Arrears Interest as at March 31, 1936	\$1,312,166.25		
Interest charged	286,675.79		
Interest Revenue		\$ 66,239.82	
Interest Bonus granted		20,203.84	
Interest on Cancelled Sales written off		190,172.73	
Arrears Interest as at March 31, 1937		1,322,225.65	
	<u>\$1,598,842.04</u>		<u>\$1,598,842.04</u>

STATEMENT OF COLLECTIONS ON TAX RECOVERY LANDS
April 1, 1936 to March 31, 1937

STATEMENT F.

Improvements	234.00		
Cultivation Rentals, etc.	937.32		
Cultivation Crop Shares	535.97		
Miscellaneous Rentals	124.59		
Grazing Permits	3,267.62		
Grazing Rentals, etc.	1,403.11		
Sales, Principal	3,288.00		
Sales, Interest	18.51		
Casual	5.00		
	<u>\$ 9,814.12</u>		
Office Fees	375.80		
	<u>\$10,189.92</u>		

HOMESTEAD ENTRIES GRANTED
April 1, 1936 to March 31, 1937

STATEMENT G.

	Homesteads	Second Homesteads	Soldier Grants	Total	Entries to Women
Edmonton Land Agency	731	75	2	808	256
Calgary Land Agency	103	14	3	120	24
Lethbridge Land Agency	1	5	.....	6	1
Peace River Land Agency	461	35	2	498	198
	<u>1,296</u>	<u>129</u>	<u>7</u>	<u>1,432</u>	<u>479</u>

